

U. S. Department of Agriculture.

MANUFACTURERS' RECORD

A WEEKLY SOUTHERN INDUSTRIAL
RAILROAD AND FINANCIAL NEWSPAPER.

Southern Textile Growth.

For the first time Southern cotton mills used last year more cotton than mills in the rest of the country. How they have advanced from using 30.9 per cent. of that taken by the country ten years ago to using 50.42 per cent. during the past year is shown by the following table, the figures for Northern mills showing takings and those for Southern mills actual consumption:

Year ended August 31—	Southern Mills, Bales.	Northern Mills, Bales.	Total, Bales.
1894.....	718,515	1,601,173	2,319,688
1895.....	862,838	2,083,839	2,946,677
1896.....	904,701	1,600,271	2,504,972
1897.....	1,042,671	1,804,680	2,847,351
1898.....	1,231,841	2,211,740	3,443,581
1899.....	1,399,399	2,190,095	3,589,494
1900.....	1,597,112	2,068,300	3,665,412
1901.....	1,620,931	1,967,570	3,588,501
1902.....	1,937,971	2,050,774	3,988,745
1903.....	2,000,729	1,967,635	3,968,364

\$4.00 per year.
Single Copy
10 Cents.

THE FULL TABLE OF CONTENTS WILL BE FOUND ON PAGE 152.

Baltimore, September 10, 1903.

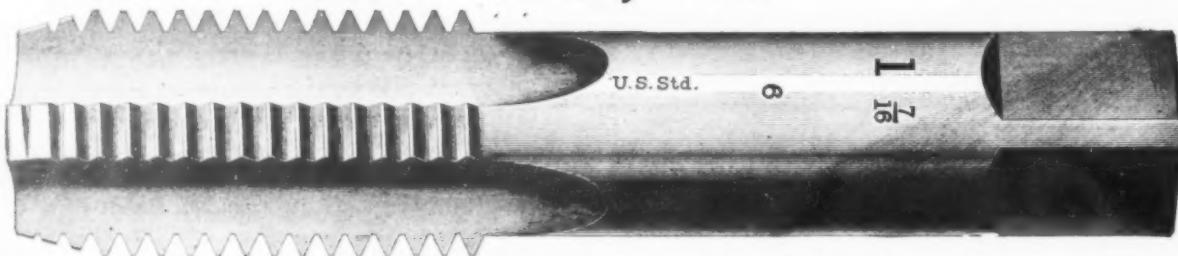
VOL. XLIV.
No. 8.

PRATT & WHITNEY CO.,

HARTFORD,
CONN.

P. & W. Special Process Taps have
longer life than any
others made.

TAPS



A full line of Small Tools carried in stock. Send to 136 Liberty Street, New York, for New Small Tool Catalogue R.

OFFICES: NEW YORK, 126-128 Liberty Street.
BOSTON, 144 Pearl Street.

CHICAGO, 46 S. Canal Street.
ST. LOUIS, C. A. Thompson, 516 N. 3d St.

PHILADELPHIA, 21st and Callowhill Sts.
PITTSBURGH, D. L. Macomber, Frick Bldg.

BUCK & HICKMAN, LTD.,
2-4 Whitechapel Road, London, Eng.

The Marion Steam Shovel Company,

MANUFACTURERS
OF

Steam Shovels,
Ballast Unloaders,
Dredges and Ditchers, Etc.

We manufacture machinery in this line in all sizes and suitable for all classes of work. Where large capacity is wanted and where exceedingly hard material is encountered, we call special attention to Model "80" and Model "90." We invite the most careful investigation. For full information address

THE MARION STEAM SHOVEL COMPANY,

Marion, Ohio, U. S. A.,

or GEO. W. BARNHART, Western Manager, No. 4 Sutter Street, SAN FRANCISCO, CAL.

Interstate Corporation Record

contains Subscription List, Charter, By-Laws, First Meetings, Secretary's Minutes, Certificate, Register, Transfer and Dividend Records, Stock Ledger.

American National Bank Record

No 1—for use when newly organized; No 2—for conversion of state banks into national.

Newport News Shipbuilding & Dry Dock Co.

WORKS AT NEWPORT NEWS, VA., ON HAMPTON ROADS.

Equipped with two large Basin Dry Docks of the following dimensions:

No. 1.	No. 2.
Length on top	610 feet.
Width on top	130 "
Width on bottom	50 "
Draught of water over sill	25 " 30 "

Shops are equipped with modern machinery capable of doing the largest work required in ship construction. Tools driven by electricity and compressed air used in constructing and repairing vessels. For estimates and further particulars, address,

C. B. ORCUTT, Pres't,

No. 1 Broadway, New York.

The... Exhibition Department BOURSE

Offers you an opportunity to
extend your business.

For full particulars address
Exhibition Department, THE BOURSE, Philadelphia.



YOUR BUSINESS,
if you want the Best Tank, is to investigate our make of Tanks, as
they are for your lifetime. If you request we will be pleased to send you our latest catalog,
which gives the dimensions, capacities, weights and prices.

G. M. DAVIS & SON, Palatka, Fla.

Branch Office—20 Cortlandt St., New York, N. Y.

MINERAL WOOL

FIRE, SOUND AND VERMIN PROOF INSULATOR.

Samples and Circulars Free.

U. S. MINERAL WOOL CO., 143 Liberty St., NEW YORK.

Stock Certificates, Bonds, Seals,

U. S. Lock Seal with Two Keys.

J. W. MIDDLETON, Publisher, Stationer,
167 Dearborn Street, CHICAGO.



MORAN FLEXIBLE JOINT

Used for all purposes requiring a Flexible Conveyor of Steam,
Air or Liquids. Made in all sizes.

MORAN FLEXIBLE JOINT CO. (Inc.) 152 THIRD STREET,
LOUISVILLE, KY.



The Columbian
Cordage Co., Auburn, N.Y.

holds its customers — once
a customer always a customer.



LUFKIN
Steel Tapes

ARE INDISPENSABLE FOR ACCURATE WORK

The Lufkin Rule Co., - - Saginaw, Mich.

For Sale Everywhere. Send for Catalogue.



Jacobs' Bolted R.R. or Canal Barrow

Full sized bent tray, strong, well finished and securely bolted to frame. This barrow has all the advantages of other bolted barrows, and, in addition, the JACOBS' PATENT WHEEL, which surpasses in every respect any wood wheel manufactured. Send for description.

All Kinds of Wheelbarrows and Grading Machinery.

KILBOURNE & JACOBS MFG. CO.

COLUMBUS, O.



A
Car
Rob
Val

A
App
Aud
Zell

A
Bul
Wat
Woo

A
Pric
Rob

A
Far
He

A
Was
Was

A
Amer
Bro
Har
ing
McL
Price
Ran
Silv
Sull
Was

A
Pitt

A
Peter

A
Stan

A
Baile
Hier
Kya
Van

A
Hier
Rya

A
App
My

A
Dyer
Gass
Bick
Mak
Italo
Price
Gam
Shee
Whew
Whew
Whi

A
Hein
Buff
Ches
Eure
Gain
Lom
Sauf
Sch
Virg
Wic

A
south

A
Arm
Guif

B
B
Amer
Ball
Colu

B
Fede

B
Stat
ont
Eck
rat

B
Flor
Jeson
Ham
Hib
Mor
Inste
Mac
Tary
Mar
MC A
Mer
Mer
Mid
Palu
Rich
Nava
hot
Thot
To be
U.S.
Wi
B
Sour
Mil
Old I
He
Alex
Amer
Balt
Boat
Cald
Can
Colu
Fra
Gand
Hart
Lom
Main
Mai
Mille
R. J.
Feer
Price
A
Shub
Voor
White

B
Calid
Fede
Jeffr
Link
Taylo

B
Amer
B
Shub
B
Diam

Classified Index of Articles Advertised

For ALPHABETICAL INDEX See Page 30

Acid Chambers.
Caroline Iron Works, Baltimore, Md.
Robertson Mfg. Co., James, Baltimore, Md.
Valk & Murdoch Iron Works, Charleston, S. C.
Accountants.

Appraisal & Audit Co. of America, Chicago, Ill.
Audit Co. of New York, The New York, N. Y.

Zell, Robt. Ross Birmingham, Ala.

Accumulators.

Bushnell Press Co., G. H., Thompsonville, Conn.

Watson-Stillman Co., New York, N. Y.

Wood, R. D. & Co., Philadelphia, Pa.

Agents. (Manufacturers')

Priest, S. M., Machinery Co., Norfolk, Va.

Roberts, J. J., Co., Newport News, Va.

Agricultural Implements.

Farmar Co., Ltd., A. H., York, Pa.

Hench & Dromgoold Co., York, Pa.

Air Brakes.

Westinghouse Air Brake Co., Pittsburgh, Pa.

Westinghouse Traction Brake Co., New York, N. Y.

Air Compressors.

American Air Compressor Works, New York, N. Y.

Bryce-Cochran Co., Lorain, Ohio.

Hardie-Tykes Mfg. Co., Birmingham, Ala.

Ingersoll-Sergeant Drill Co., New York, N. Y.

McKierian Drill Co., New York, N. Y.

Price, S. M., Machinery Co., Norfolk, Va.

Pneumatic Engineering Co., New York, N. Y.

Rand Drill Co., New York, N. Y.

Stillwell-Bierce & Smith-Vale Co., Dayton, O.

Sullivan Machinery Co., Chicago, Ill.

Westinghouse Traction Brake Co., New York, N. Y.

Aluminum Products. (Bars, Sheets, Tubing, Etc.)

Pittsburg Reduction Co., Washington, D. C.

Ammunition.

Peters Cartridge Co., Cincinnati, O.

Angle Power Transmitter.

Standard, A., Estate, Columbus, O.

Anti-Friction Metals.

Bailey-Leibby Co., Charleston, S. C.

Hertz, Theo., Metal Co., St. Louis, Mo.

Kyan, J. J., & Co., Chicago, Ill.

Van Duzen, E. W., Co., Cincinnati, O.

Antimony.

Hertz, Theo., Metal Co., St. Louis, Mo.

Ryan, J. J., & Co., Chicago, Ill.

Appraisers. (Mfg. Plants, etc.)

Appraisal & Audit Co. of America, Chicago, Ill.

Myers, Finney & Morrison, Richmond, Va.

Architects.

Dyer, D. H., & Sons, Fall River, Mass.

Gasser, Paul, Tampa, Fla.

McMichael & Hunter, Charlotte, N. C.

Makespace, C. R., & Co., Providence, R. I.

Milburn, Frank F., Columbia, S. C.

Mitcham & Beach, Camden, S. C.

Prasay, C. A. M., & Co., Providence, R. I.

Ramsey, John E., & Co., Salisbury, N. C.

Shaw, Fred, C., Augusta, Ga.

Sheffield, O. H., & Co., Atlanta, Ga.

Whaley, W. B. S., & Co., Columbia, S. C.

Wheeler & Bunge, Charlotte, N. C.

White, H. E., Rock Hill, S. C.

Architectural Iron Work.

Belman Iron Works, Philadelphia, Pa.

Buffalo Wire Works Co., Buffalo, N. Y.

Chesapeake Iron Works, Baltimore, Md.

Gardner Iron Works, Chattanooga, Tenn.

Gardner Iron Works, Gainesville, Ga.

Lombard Iron Works & Supply Co., Augusta, Ga.

Sanford-Day Iron Works, Knoxville, Tenn.

Schreiber, L., & Sons Co., The, Cincinnati, O.

Virginia Bridge & Iron Co., Roanoke, Va.

Wisconsin Iron & Wire Works, Milwaukee, Wis.

Asbestos.

Southern Pipe Covering Co., Richmond, Va.

Asphalt.

Armitage Mfg. Co., Richmond, Va.

Gulf Refining Co., Pittsburg, Pa.

Babbitt Metal. (See Anti-Friction Metal.)

Bags, Rope and Twine.

American Mfg. Co., New York City.

Bailey, John T., & Co., Philadelphia, Pa.

Columbian Cordage Co., Auburn, N. Y.

Balls. (Steel.)

Federal Mfg. Co., Cleveland Ball Factory, Cleveland, O.

Bankers and Brokers.

Beaumont Trust Co., Beaumont, Tex.

Continental Trust Co., Baltimore, Md.

Exchange Bank, Macon, Ga.

First National Bank, Richmond, Va.

New York, N. Y.

Georgia Railroad Bank, Augusta, Ga.

Hampton & Co., Baltimore, Md.

Hibernia Bank, Trust Co., New Orleans, La.

Hornaday, J. P., & Co., Cincinnati, O.

International Trust Co., Baltimore, Md.

MacBane, Hugh, & Co., Wilmington, N. C.

McNamee Trust Co., Baltimore, Md.

Martin & Bro., Augusta, Ga.

McAdoo, Calvin N., Greensboro, N. C.

Merchants & Farmers' Nat'l Bk., Charlotte, N. C.

Merchants National Bank, Baltimore, Md.

Middendorf, J. W., & Co., Baltimore, Md.

Palmetto Bank & Trust Co., Columbia, S. C.

Richmond Trust & Safe Deposit Co., Richmond, Va.

Savannah Trust Co., Savannah, Ga.

Thomson, Edw. H., & Sons, Baltimore, Md.

Thomson, Henry W., Spartanburg, S. C.

Tobey & Kirk, New York, N. Y.

Trask, Spencer & Co., New York, N. Y.

U. S. Mortgage & Trust Co., New York, N. Y.

Williams, John L., & Sons, Richmond, Va.

Bare Iron and Steel.

Bourne-Fuller Co., Cleveland, O.

Milton Mfg. Co., Milton, Pa.

Old Dominion Iron & Nail Works Co., Richmond, Va.

Beltting.

Alexander Bros., Philadelphia, Pa.

American Supply Co., Providence, R. I.

Bailey-Leibby Co., Charleston, S. C.

Baltimore Beltting Co., Baltimore, Md.

Boston Beltting Co., Boston, Mass.

Caldwell, H. W., & Son Co., Chicago, Ill.

Cameron & Barkley Co., Charleston, S. C.

Columbia Supply Co., Columbia, S. C.

Frederick, E. M., & Co., Gallon, O.

Gandy Beltting Co., Baltimore, Md.

Harfield-Garbett Co., Savannah, Ga.

Lombard Iron Works & Supply Co., Augusta, Ga.

Main Beltting Co., Philadelphia, Pa.

Meier's Joseph, Sons, New York, N. Y.

Miller Oil & Supply Co., Indianapolis, Ind.

N. J. Car Spring & Rubber Co., Jersey City, N. J.

Pearson Rubber Manufacturing Co., New York, N. Y.

Price, S. M., Machinery Co., Norfolk, Va.

Rosendale-Boddaway Beltting & Hose Co., Newark, N. J.

Shultz Beltting Co., St. Louis, Mo.

Voorhees Rubber Mfg. Co., Jersey City, N. J.

Whitehurst Beltting Co., Baltimore, Md.

Beltting. (Chain.)

Bartlett, C. O., & Snow Co., Cleveland, O.

Caldwell, H. W., & Son Co., Chicago, Ill.

Federal Mfg. Co., Cleveland, Ohio.

Jeffrey Manufacturing Co., Columbus, O.

Link-Belt Engineering Co., Nicetown (Phila.), Pa.

Taylor Iron & Steel Co., High Bridge, N. J.

Bolt Fasteners.

American Machine Co., Providence, R. I.

Bolt Lacing.

Bullock Beltting Co., St. Louis, Mo.

Bolt Lacing Machines.

Diamond Drill & Machine Co., Birdsboro, Pa.

Belt Preserver.
Shultz Beltting Co., St. Louis, Mo.

Blower. (Argand Steam.)
McClave-Brooks Co., Scranton, Pa.

Blowers. (Pressure.)
Allington & Curtis Mfg. Co., Saginaw, E. B., Mich.

American Blower Co., Detroit, Mich.

Dixie Mfg. Co., Baltimore, Md.

Turner & Co., B. F., Boston, Mass.

Blowers and Exhaust Fans.
Allington & Curtis Mfg. Co., Saginaw, E. B., Mich.

American Blower Co., Detroit, Mich.

Andrews & Johnson Co., Chicago, Ill.

Crosby St. Gage & Valve Co., Boston, Mass.

Dixie Mfg. Co., Baltimore, Md.

Hartford Blower Co., Hartford, Conn.

Southward Foundry & Machine Co., Phila., Pa.

Stocker, George J., St. Louis, Mo.

Turner & Co., B. F., Boston, Mass.

Blue Print Apparatus.
Pittsburg Blue Print Co., Pittsburg, Pa.

Blue Prints.
Blank, Ewald G., Baltimore, Md.

Myers, Finney & Morrison, Richmond, Va.

Bobbins.
Sherwood Bobbin & Mfg. Co., Greensboro, N. C.

Bolts.
Alexander, S. B., Jr., Co., Charlotte, N. C.

Ashland Engine Works, Indianapolis, Ind.

Wilson, Wilson Co., New York, N. Y.

Baltimore Engine Co., Baltimore, Md.

Birmingham Boiler Works, Birmingham, Ala.

Brownell & Co., The, Dayton, O.

Cameron & Barkley Co., Charleston, S. C.

Chicago House Wrecking Co., Chicago, Ill.

Codd Co., E. J., Baltimore, Md.

Farquhar Co., Ltd., A. B., York, Pa.

Fritz Co., Waynesboro, Pa.

Gibbs, W. H., & Co., Columbia, S. C.

Girard Machine & Tool Co., Philadelphia, Pa.

Harfield-Garbett Co., Savannah, Ga.

Hartford Boiler Works, Montgomery, Ala.

Koeler Co., E., Williamsport, Pa.

Loffel, James, & Co., Springfield, Ohio.

Lombard Iron Works & Supply Co., Augusta, Ga.

Milwaukee Iron Works Co., Milwaukee, Wis.

Murphy Iron Works Co., Winston, N. C.

Petroleum Iron Works Co., Waynesboro, Pa.

Phoenix Iron Works Co., Medeville, Pa.

Price, S. M., Machinery Co., Norfolk, Va.

Savannah Locomotive & Car Works, Savannah, Ga.

Scaife, Wm. B., & Sons, Pittsburg, Pa.

Schofields, J. S., Sons Co., Macon, Ga.

Smith-Courtney Co., Richmond, Va.

Southern Eng. & Boiler Works, Jackson, Tenn.

Stirling Co., Chicago, Ill.

St. Louis Iron & Machine Works, St. Louis, Mo.

Union



Too Much Steam.

This is the experience of many concerns that have been losing steam and put in
Heintz Steam Traps

That's easily remedied by cutting down the coal bills. Proof before pay. Send for booklet "I."

WILLIAM S. HAINES CO.
136 South Fourth Street, Philadelphia.

Goes Up in Smoke.

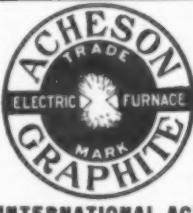
A factory's fortunes hinge upon good boilers, sound machinery, clear draft, ever-burning fire. Delay spells loss. Leaks, cracks, rust, corrosion are bane of business.

... Wisconsin . . .

Graphite Roof and Stack Paint
keeps the repair-man idle. No weather extremes, no climatic caprice can pierce their armor plate. Free samples.

Wisconsin Graphite Company,
PITTSBURG, PA.

THE SAFETY
Car Heating & Lighting Co.
160 Broadway, New York.
CAR LIGHTING
By the Pinch System.
CAR HEATING
By Steam Jacket System, Hot Water Circulation, Return and Direct Steam Systems.
AUTOMATIC STEAM COUPLERS.



ACHESON GRAPHITE

Manufactured in the Electric Furnace. Write us for full information regarding the use of this material in high grade protective coatings, lubricating compounds, pipe joint compounds, as foundry facings, for electrotyping purposes, etc.

INTERNATIONAL ACHESON GRAPHITE CO., Niagara Falls, N. Y., U. S. A.



PROTECTION

The Waggoner Watchman Clock
Safeguards Your Property Against Fire or disturbances or indolence of watch men. Shipped on 30 days' FREE trial.

Reduces Insurance

Interesting Booklet Free. It is called "Common Sense For Business Men." We make Sanitary Chemical Fire Pails.

The Waggoner Watchman Clock Co.
GRAND RAPIDS, MICHIGAN

Imhauser's Watchman's Time Detectors.
Cannot fall. Write for Catalogue.



Made with 12 or 24 different keys. Contain all the modern improvements. Warranted in every way. Cannot be tampered with without detection.

MANUFACTURED BY
E. IMHAUSER & CO., 206 Broadway, New York.

WATCHMAN'S CLOCK
LATEST IMPROVED.
Gives an exact record of the Watchman's doings.
WRITE TO
B. NANZ & CO.
227 Duane Street, NEW YORK

FACTORY TIME CHECKS.
They are being used more and more. Write for our pamphlet, "Time Checks and Their Use." We also make

MERCHANDISE CHECKS.
AMERICAN RAILWAY SUPPLY CO.
Address Dept. J. 24 Park Place, New York.

FOR
GRAIN CLEANING
AND MINING
MACHINERY.
WOOLEN, COTTON,
PAPER AND PULP
MILLS.
COTTON SEED OIL
RICE AND FLOUR
MILLS.
SUGAR AND MALT
HOUSES,
DISTILLERIES,
FILTER PRESSES,
STONE, COAL
AND ORE SCREENS.
BRICK AND TILE
WORKS,
FILTERS,
SPARK ARRESTERS
GAS AND WATER
WORKS.
OIL, GAS & VAPOR
STOVES.
COFFEE
MACHINERY,
ETC.,
ETC.

PERFORATED METALS.



**STEEL, IRON,
COPPER, ZINC,
BRASS, TIN,**

AND ALL OTHER METALS PERFORATED AS REQUIRED

STANDARD SIZES
PERFORATED TIN AND BRASS
ALWAYS IN STOCK.

The HARRINGTON & KING PERFORATING CO.

MAIN OFFICE AND WORKS, 234 N. UNION ST., CHICAGO, ILLS.

EASTERN OFFICE, 114 LIBERTY ST., N.Y.

THE ROBINSON OILS

"they lubricate more, and outlast other oils."

High-Grade,
Cylinder, Engine, Spindle,
Dynamo Oils.
Oils for all types of Machinery.
GREASES.

WM. C. ROBINSON & SON CO.
217 South St., BALTIMORE, MD.

Conveying, Elevating and Power Transmitting Machinery

A COMPLETE LINE OF THE BEST.

Caldwell Helicoid Conveyor!



The only perfect spiral conveyor with continuous flight—no laps or rivets.

Seamless Steel Elevator Buckets, Elevator Boots, Rope Transmission Machinery, Sprocket Wheels, Link Belting, Shafting, Belting, Hangers, Pulleys, Gears, Carpellers, Automatic Power Grain Shovels, Wood Split Pulleys, Wire Cloth, Perforated Metal.

Complete Equipments for handling materials of all kinds.

Western Avenue, 17th to 18th Streets,
CHICAGO, ILL.

H. W. CALDWELL & SON COMPANY,

Our New Catalogue No. 26 (440 Pages, Cloth Bound), will be Sent Upon Request.

EASTERN SALES AND ENGINEERING OFFICE, 416-95 Liberty St., New York, N. Y.

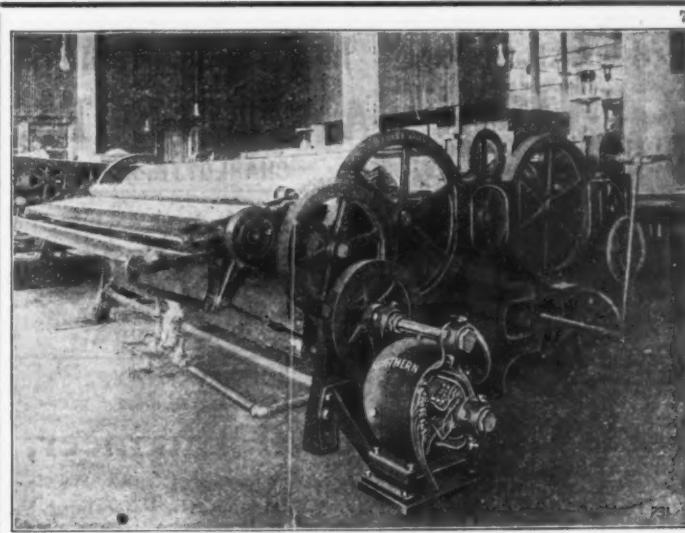
SOUTH-EASTERN SALES AND ENGINEERING OFFICE, 411 Prudential Bldg., Atlanta, Ga.

SOUTH-WESTERN SALES AND ENGINEERING OFFICE, 202 Trust Bldg., Dallas, Tex.

Classified Index of Articles Advertised

FOR ALPHABETICAL INDEX See Page 30

Peacock Iron Works, Selma, Ala.
Sanford-Day Iron Works, Knoxville, Tenn.
Savannah Loco. Wks. & Supply Co., Savannah, Ga.
Steele, J. C., & Sons, Statesville, N. C.
Stuebner, G. L., Iron Works, Long Island City, N. Y.
Union Iron Works, Selma, Ala.
Worham-Magor Engine Works, New York, N. Y.
Cars. (Passenger and Freight) [See Railroad Equipment and Supplies.]
Car Building Machinery.
 Fay, J. A., & Egan Co., Cincinnati, O.
Car Couplers and Knuckles.
 Chester Steel Castings Co., Philadelphia, Pa.
 Latrobe Steel & Copper Co., Philadelphia, Pa.
 Safety Car Heating & Lighting Co., New York, N. Y.
Car Lighting and Heating.
 Safety Car Heating & Lighting Co., New York, N. Y.
Car Seats. (Leather).
 Hertz, Theo., Metal C., St. Louis, Mo.
Car Wheels, Axles and Trucks.
 Koppel, Arthur, New York, N. Y.
 Macdonald, J. H., & Co., Suffolk, Va.
 Peacock Iron Works, Selma, Ala.
 Sanford-Day Iron Works, Knoxville, Tenn.
 Union Iron Works Co., Selma, Ala.
Casters and Caster Wheels.
 Standard Caster & Wheel Co., New York, N. Y.
Castings. (Brass and Bronze).
 Lunkenheimer Co., Cincinnati, O.
 Phosphor Bronze Smelting Co., Ltd., Phila., Pa.
 Richmond Pattern Works, Richmond, Va.
 Ryan, J. J., & Co., Chicago, Ill.
 Van Duzen, E. W., Co., Cincinnati, O.
Castings. (Aluminum).
 Pittsburgh Reduction Co., Washington, D. C.
Castings. (Iron).
 Chattanooga Roofing & Fdry. Co., Chattanooga, Tenn.
 Dimmick Pipe Co., Birmingham, Ala.
 East Foundry & Machine Co., Easton, Pa.
 Glamorgan Pipe & Foundry Co., Lynchburg, Va.
 Lombard Iron Works & Supply Co., Augusta, Ga.
 McLean-Stone Machine Co., Hollidaysburg, Pa.
 Maryland Fdry. & Mch. Co., Baltimore, Md.
 Richmond Pattern Works, Richmond, Va.
 Ross-Meehan Fdry. Co., Chattanooga, Tenn.
 Sanford-Day Iron Works, Knoxville, Tenn.
 Tompkins, D. A., Co., Charlotte, N. C.
 Valley Iron Works, Williamsport, Pa.
 Westbrooks, J. B., Fdry. & Mch. Co., Danville, Va.
 Wilks Foundry Co., Toledo, O.
 Wood, R. D., & Co., Philadelphia, Pa.
Castings. (Malleable Iron and Steel).
 Chester Steel Castings Co., Chester, Pa.
 Ross-Meehan Fdry. Co., Chattanooga, Tenn.
Castings. (Steel).
 Chester Steel Castings Co., Chester, Pa.
 Diamond Drill & Machine Co., Birdsboro, Pa.
Cellings. (Metal).
 Penn Metal Ceiling & Roofing Co., Phila., Pa.
Cement.
 American Cement Co., Philadelphia, Pa.
 Bird, W. M., & Co., Charleston, S. C.
 Carolina Port, Cement Co., Charleston, S. C.
 Cumber, Hyd. Cement & Mfg. Co., Cumberland, Md.
 French, Samuel H., & Co., Philadelphia, Pa.
 General Supply & Construction Co., New York, N. Y.
 Gilbert, C. M., & Co., Savannah, Ga.
 Hartranft Cement Co., Wm. G., Philadelphia, Pa.
 Kelley Island Lime & Transport Co., Cleveland, O.
 Maryland Cement Co., Baltimore, Md.
 Maryland Lime & Cement Co., Balti., Md.
 Mobile Coal Co., Mobile, Ala.
 Southeastern Lime & Co., Charleston, S. C.
 Warner Co., Chas., Wilmington, Del.
Cement Machinery.
 Bradley Paverizer Co., Boston, Mass.
 Kent Mill Co., New York, N. Y.
 Osborn Engineering Co., Cleveland, O.
 Smith, F. L., & Co., New York, N. Y.
Cement Plant Designers.
 Osborn Engineering Co., Cleveland, O.
Chain Hoists.
 Spedding, J. G., Reading, Pa.
Chains.
 Case Mfg. Co., Columbus, O.
 Chilcot-Evans Chain Co., Allegheny, Pa.
 Empire Chain Co., Pittsburgh, Pa.
 Federal Mfg. Co., Diamond Chain Fcty., Indianapolis, Ind.
 Greenwald Co., I. & E., Cincinnati, O.
 Jeffrey Mfg. Co., The Columbus, O.
 Link-Belt Engineering Co., Philadelphia, Pa.
 N. J. Foundry & Machine Co., New York, N. Y.
Chairs. (Invalids).
 Allison, W. D., Co., Indianapolis, Ind.
Chandellers.
 Electric Supply Co., Savannah, Ga.
 Polack, Charles & Bro., Milwaukee, Wis.
Charcoal. (Filtering).
 Obermayr Co., S. Cincinnati, O.
Charcoal. (Fuel).
 Mathieu, J. A., Georgetown, S. C.
Checks. (Factory, Time and Merchandise).
 American Railway Supply Co., New York, N. Y.
Chemists.
 Catlett, Chas., Staunton, Va.
 Froehlic & Robertson, Richmond, Va.
 Pratt Laboratory, N. F., Atlanta, Ga.
Chloride of Calcium.
 Carbondale Chemical Co., Carbondale, Pa.
Chucks.
 Morse Twist Drill & Machine Co., New Bedford, Mass.
 Skinner Chuck Co., New Britain, Conn.
 Whiton Machine Co., D. E., New London, Conn.
Clocks. (Watchman's and Town).
 Imhauser & Co., E., New York, N. Y.
 Nanz, B., & Co., New York, N. Y.
 Waggoner Watchman Clock Co., Grand Rapids, Mich.
Coals.
 Alabama Con. Coal & Iron Co., Birmingham, Ala.
 Castner, Curran & Bullock, Philadelphia, Pa.
 Crooked Fork Coal Co., Petrolia, Tenn.
 Davis Coal & Coke Co., Philadelphia, Pa.
 Jewett, Bigelow & Brooks, Detroit, Mich.
 Mt. Juliet Co. Coal Co., Kenesaw, Ky.
 Mobile Coal Co., Mobile, Ala.
 Niver, W. K., Coal Co., Baltimore, Md.
Coal-Handling Machinery.
 Aultman Co., Canton, O.
 Bartlett, C. O., & Snow Co., Cleveland, O.
 Hayward Co., New York, N. Y.
 Hunt, Co., C. W., West New Brighton, N. Y.
 Jeffrey Mfg. Co., Columbus, O.
 Link-Belt Engineering Co., Philadelphia, Pa.
 Rawson & Morrison Mfg. Co., Cambridge, Boston, Mass.
 Stuebner, G. L., Iron Works, Long Island City, N. Y.
Coal-Tar Products.
 Barrett Mfg. Co., Philadelphia, Pa.
 Buchanan-Foster Co., Philadelphia, Pa.
Coke.
 Alabama Con. Coal & Iron Co., Birmingham, Ala.
 Crooked Fork Coal & Coke Co., Petrolia, Tenn.
 Davis Coal & Coke Co., Philadelphia, Pa.
Compressed Air Locomotives. (See Locomotive Builders.)
Concentrating Plants.
 Oregon Co., Geo. V., New York, N. Y.
Concrete Engineers.
 Frink & Hazen, Baltimore, Md.
 Gilbreth, Frank B., Boston, Mass.
 Osborn Engineering Co., Cleveland, O.
 Ransom & Smith, Co., New York, N. Y.
Concrete Mixers.
 Drake Standard Machine Works, Chicago, Ill.
 Parsons Concrete Mchb. Co., New York, N. Y.
Concrete Steel Construction.
 Frink & Hazen, Baltimore, Md.
 Parsons & Smith Co., New York, N. Y.
Condensers.
 Alberger Condenser Co., New York, N. Y.
 McClellan, Hamilton & Co., New York, N. Y.
 Price, S. M., Machinery Co., Norfolk, Va.
 Stillwell-Bierce & Smith-Valle Co., Dayton, O.



Laundry Machinery

operated economically, conveniently, by Motor Drive. Can be run as required, consuming no power while not operating. Motor Drive abolishes dirty, light-destroying belts, and makes re-padding rolls on mangles easy.

Ask us about this; at least send for Leaflet No. 6107.

Northern Electrical Mfg. Co., Madison, Wis., U.S.A.

Engineers—Manufacturers.

Established 1874.

The largest and most reliable Foundry Supply House in the world.

MANUFACTURERS

"Everything You Need in Your Foundry."

THE S. OBERMAYER CO.

CINCINNATI.

CHICAGO.

PITTSBURG.

MANUFACTURERS

High Grade Foundry Facings and Blackings.

IMPORTERS AND REFINERS

Ceylon Plumbago, Silver Lead, Graphite.

BUILDERS

MODERN FOUNDRY EQUIPMENT.

If it Leaks

it won't cost you a-well, it won't leak, it's guaranteed not to, and

It's not a

kind that must be taken from the piping to have working parts renewed

Crosby

SPRING SEAT GLOBE AND ANGLE VALVE.

We have a booklet written for you.

Crosby Steam Gage & Valve Company,

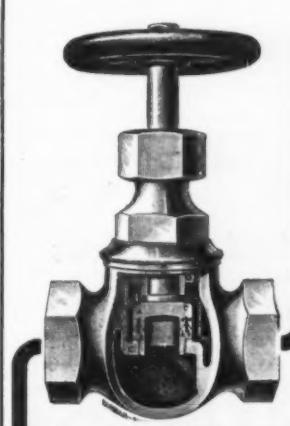
OFFICE AND WORKS, BOSTON, MASS.

93-97 Oliver St., BOSTON, MASS.

78 John Street, NEW YORK.

21-23 Lake Street, CHICAGO, ILL.

147 Queen Victoria St., LONDON.



ARCHITECTS, CHEMISTS, CONTRACTORS, ENGINEERS, Etc.

**FRANK P. MILBURN,
ARCHITECT
COLUMBIA, S. C.**

Mills, Factories, Warehouses of Steel-Concrete Construction.
Plans prepared and estimates furnished by
W. B. UPTON CO., (Inc.)
Constructing Engineers,
Washington Loan & Trust Bldg., Washington, D. C.

W. B. SMITH WHALEY & CO.
Mill Engineers and Architects.
Offices—1328 Main Street, Columbia, S. C.
and 102 Tremont Building, Boston, Mass.

C. A. M. PRARAY & CO.
Mill Architects and Engineers,
PROVIDENCE, R. I.

MITCHAM & BEACH,
Architects and Engineers, Camden, S. C.
Plans and Specifications prepared for all classes of construction.

**WHEELER & RUNGE
ARCHITECTS,**
Charlotte, N. C.

**FRED GORDON SHAW,
ARCHITECT**

AUGUSTA and COLUMBUS, GA. Special Attention to Heavy Constructions.

Surveys,
Estimates,
Specifications,
Consultation,
Reports,
Superintendence,
Inspection,
Testing.

**Myers, Finney & Morrison,
Associated Engineers.**

CIVIL. ELECTRICAL. MECHANICAL.
E. T. D. Myers, Jr., John H. Finney, Hugh S. Morrison,
Mem. Am. So. C. E. As. Mb. A.I.E.E. Jun. Mb. A.S.M.E.
WASHINGTON, D. C. and RICHMOND, VA.
Bond Bldg. 1107½ E. Main St.

FOR THE
RESIDENCE,
PUBLIC BUILDINGS
And FACTORIES.

Electric Rwy., Power
and Lighting Plants,
Industrial Plants,
Factory Economics,
Modernizing,
Arbitration,
BLUE PRINTS,
all kinds.

Engineering Company of America.

(INCORPORATED.)

74 Broadway, New York.

ENGINEERS

In Civil, Mechanical, Electrical, Hydraulic, Forestry, Metallurgical and Mining Departments.
Plans, Specifications and Supervision of installations of plants of all kinds.

Examination, Reports and Recommendations on existing properties, with a view to reducing cost of maintenance and production.
Reports giving the technical and commercial possibilities of Enterprises, Power Plants, Mines, Smelters, Railways.

Branch Offices:

159 La Salle St., CHICAGO, ILL.

CHARLOTTE, N. C.

DENVER, COLO.

MEMBER
AMERICAN SOCIETY MECHANICAL ENGINEERS.

MEMBER
AMERICAN INSTITUTE ELECTRICAL ENGINEERS.

**JAMES B. SCOTT,
CONSULTING ENGINEER.**

607-8 WEST END TRUST BLDG. 808-9 MARYLAND TRUST BLDG. 1109 COMMERCIAL CABLE BLDG.
PHILADELPHIA. BALTIMORE. NEW YORK.

REPORTS—Examinations and expert advice on the earning capacity, construction, operation and reorganization of public service properties.

SURVEYS—Projected railways and general practice.

PLANS AND SPECIFICATIONS—Complete electric railways, electric lighting systems, steam and hydraulic power plants, etc.

SUPERINTENDENCE—During construction. Supervision of operating departments.

**STEEL FRAME MILL BUILDINGS,
STEEL and IRON TANKS and VATS
OF EVERY DESCRIPTION**

Scaife's Germ-Proof Water Filters,
10 to 10,000 gallons capacity per hour.

WM. B. SCAIFE & SONS CO.

(Founded 1802.)

PITTSBURG, PA.

**BRIDGES.
VIADUCTS.
TURNTABLES.
POWER HOUSES.
FACTORY BUILDINGS.**

VIRGINIA

C. R. MAKEPEACE & CO.
Architects and Mill Engineers.

PROVIDENCE, R. I. Plans, Specifications and Estimates furnished for Cotton & Woolen Mills.



N. P. PRATT LABORATORY,
Fifteen Building, ATLANTA, GA.
Assays and analyses of all natural and artificial products. Chemical and mining engineering.

FROEHLING & ROBERTSON,

Successors to DR. HENRY FROEHLING,
Analytical and Consulting Chemists.
Chemical and Mining Engineers.

17 South 12th St., RICHMOND, VA.

Analyses and assays of ores of every kind, and of all artificial products. Water analysis, mineral, sanitary and manufacturing, a specialty. Estimates promptly furnished. Geological and chemical investigation of mineral properties of the South.

John E. Ramsay & Co

ARCHITECTS.

Bell Block. SALISBURY, N. C.

W. H. HARVEY,
Engineer and Contractor.

Plans and Specifications for Complete Plants.
Electric, Hydraulic and Steam Installations.
Results Guaranteed.

Suite 350 Randolph Bldg., MEMPHIS, TENN.

D. H. DYER & SON

Textile Mill Architects
and ELECTRICAL ENGINEERS,

Established over 40 years. Fall River, Mass.

T. W. NICOL,
Consulting Civil Engineer,

Railways, Water Works and
Sewers.

Office, Pollock Building, MOBILE, ALA.

Established 1891. Cable Address, "Catlett."

CHARLES CATLETT,
Chemist and Geologist,

Formerly of the U. S. Geolog. Survey Lab.
Examination and Report on Developed and Undeveloped Properties.

Stanton, Va.

Long Distance Telephone Connection.

BARR & ELAM, Electrical Contractors.
Electric and Gas Supplies, Electric Bells, Burglar Alarms, &c.

GREENSBORO, NORTH CAROLINA.

**BLUE PRINTS OF ALL KINDS
CHEAP.**

ALSO TRACINGS.

EWALD G. BLANKE,
213 St. Paul St., BALTIMORE, MD.

PORTLAND CEMENT

ARE YOU IN THE MARKET?

What quality do you desire? Send us particulars. No order too large for us to fill promptly, and we can deliver anywhere in the world. We know we can give you interesting figures on High Grade German Cement.

General Supply & Construction Co.

8 and 10 Bridge Street, New York.

BRIDGE & IRON CO.
ROANOKE, VA.

MANUFACTURERS' RECORD.

7

Classified Index of Articles Advertised

FOR ALPHABETICAL
INDEX See Page 30

- Designers and Illustrators.**
Alpha Photo-Engraving Co., Baltimore, Md.
Baltimore-Maryland Engraving Co., Baltimore, Md.
Decks.
Cushing Co., The, Baltimore, Md.
Dearborn Deck Co., Birmingham, Ala.
Himmel, M. L., & Son, Baltimore, Md.
Dies for Sheet-Metal Workers.
Lemer, Chas., & Co., Brooklyn, N. Y.
Niagara Machine & Tool Works, Buffalo, N. Y.
Dipper Teeth, Lips, etc.
Taylor Iron & Steel Co., High Bridge, N. J.
Doors. (Steel Rolling.)
Kinney Mfg. Co., Columbus, O.
Dredges and Excavators.
Hardy-Tynes Mfg. Co., Birmingham, Ala.
Howard Co., New York, N. Y.
Male Co., Cincinnati, O.
Marion Steam Shovel Co., Marion, O.
Theo Automatic Shovel Co., Lorain, O.
Drills. (Pneumatic.) (See Drills, Rock & Mining.)
Drills. (Prospecting.)
Crippen, H. D., New York, N. Y.
Sullivan Machinery Co., Chicago, Ill.
Drills. (Rock and Mining.)
Crippen, H. D., New York, N. Y.
Ingersoll-Sergeant Drill Co., New York, N. Y.
McKernan Drill Co., New York, N. Y.
Rand Drill Co., New York, N. Y.
Sullivan Machinery Co., Chicago, Ill.
Drills. (Twist.)
Barnes Co., W. F. & John, Rockford, Ill.
Morris Twin Drill & Machine Co., New Bedford, Mass.
Drill Presses.
Bailey-Lebby Co., Charleston, S. C.
Barnes Co., W. F., & John, Rockford, Ill.
Barr, H. G., Worcester, Mass.
Bickford Drill & Tool Co., The, Cincinnati, O.
Price, S. M., Machinery Co., Norfolk, Va.
Walke, Henry, Co., Norfolk, Va.
Drop Forgings.
Wilcox Mfg. Co., D., Mechanicsburg, Pa.
Dry-Docks.
Baltimore Shipbuilding & Dry Dock Co., Balt., Md.
Newport News Shipbldg. & D. D. Co., Newpt., News, Va.
Drying Machinery.
American Blower Co., Detroit, Mich.
Andrews & Johnson Co., Chicago, Ill.
Bailey-Lebby Co., The, Charleston, S. C.
Bartlett, C. O., & Snow Co., Cleveland, O.
Jeffrey Mfg. Co., The, Columbus, O.
Ruggles-Coles Engineering Co., New York, N. Y.
Sturtevant Co., B. F., Boston, Mass.
Dry-Rolls.
American Blower Co., Detroit, Mich.
Sturtevant Co., B. F., Boston, Mass.
Union Iron Works Co., Selma, Ala.
Dumbwaiters.
Spedel, J. G., Reading, Pa.
Dust-Collecting System.
Allington & Curtis Mfg. Co., Saginaw, E. S. Mich.
Dixie Mfg. Co., Baltimore, Md.
Dyeing Machinery.
Fairmount Machine Co., Philadelphia, Pa.
Dynamos and Motors.
Alexander, Jr., Co., S. B., Charlotte, N. C.
Commercial Electric Co., Indianapolis, Ind.
Crocker-Wheeler Co., Ampere, N. J.
Ewing-Merkle Electric Co., St. Louis, Mo.
Florida Electric Co., Jacksonville, Fla.
Electrical Material Co., Baltimore, Md.
General Electric Co., Schenectady, N. Y.
Guarantees Electric Co., Chicago, Ill.
Johnson, C. T., Buffalo, N. Y.
Kentucky Electric Co., Owensboro, Ky.
Northern Electric Mfg. Co., Madison, Wis.
Piedmont Electric Co., Asheville, N. C.
Ridgway Dynamo & Engine Co., Ridgway, Pa.
Standard Electric Co., Norfolk, Va.
Triumph Electric Co., Cincinnati, O.
Westinghouse Elec. & Mfg. Co., Pittsburgh, Pa.
Western Electrical Supply Co., St. Louis, Mo.
Educational Institutions.
University School for Boys, Baltimore, Md.
Extractors.
Ohio Injector Co., Wadsworth, O.
Electric Contractors.
Alexander, Jr., S. B., Co., Charlotte, N. C.
Barr & Elam, Greensboro, N. C.
Electrical Material Co., Baltimore, Md.
Electric Supply Co., Savannah, Ga.
Ewing-Merkle Electric Co., St. Louis, Mo.
Harvey, W. H., Memphis, Tenn.
MacAfee, John Blair, Philadelphia, Pa.
McWilliams, Jos., & Co., Louisville, Ky.
Northern Elec. Mfg. Co., Madison, Wis.
Scott, James B., Baltimore, Md.
Standard Electric Co., Norfolk, Va.
Tompkins, D. A., Co., Charlotte, N. C.
Upton, W. B., Co., Washington, D. C.
Western Electrical Supply Co., St. Louis, Mo.
Electrical Instruments.
Electrical Material Co., Baltimore, Md.
Ewing-Merkle Electric Co., St. Louis, Mo.
New York & Ohio Co., Warren, O.
Northern Electric Mfg. Co., Madison, Wis.
Piedmont Electric Co., Asheville, N. C.
Standard Electric Co., Norfolk, Va.
Western Electrical Supply Co., St. Louis, Mo.
Westinghouse Electric & Mfg. Co., Pittsburgh, Pa.
Electric Mch. (Generators, Motors, etc.)
Alexander, Jr., Co., S. B., Charlotte, N. C.
Commercial Electric Co., Indianapolis, Ind.
Crocker-Wheeler Co., Ampere, N. J.
Electric Mchines Co., Baltimore, Md.
Ewing-Merkle Electric Co., St. Louis, Mo.
General Electric Co., Schenectady, N. Y.
N. J. Foundry & Machine Co., New York, N. Y.
New York & Ohio Co., Warren, O.
Northern Electric Mfg. Co., Madison, Wis.
Piedmont Electric Co., Asheville, N. C.
Ridgway Dynamo & Engine Co., Ridgway, Pa.
Standard Electric Co., Norfolk, Va.
Tompkins, D. A., Co., Charlotte, N. C.
Triumph Electric Co., Cincinnati, O.
Upton, W. B., Co., Washington, D. C.
Western Electrical Supply Co., St. Louis, Mo.
Westinghouse Elec. & Mfg. Co., Pittsburgh, Pa.
Western Electrical Supply Co., St. Louis, Mo.
Electric Railway Equipment.
Alexander, Jr., Co., S. B., Charlotte, N. C.
Electrical Material Co., Baltimore, Md.
Ewing-Merkle Electric Co., St. Louis, Mo.
General Electric Co., Schenectady, N. Y.
Northern Electric Mfg. Co., Madison, Wis.
Standard Electric Co., Norfolk, Va.
Triumph Electric Co., Cincinnati, O.
Westinghouse Elec. & Mfg. Co., Pittsburgh, Pa.
Western Electrical Supply Co., St. Louis, Mo.
Electrical Repairs.
Alexander, Jr., Co., S. B., Charlotte, N. C.
Electric Supply Co., Atlanta, Ga.
Ewing-Merkle Electric Co., St. Louis, Mo.
Guarantees Electric Co., Savannah, Ga.
Kentucky Electrical Co., Owensboro, Ky.
Standard Electric Co., Norfolk, Va.
Western Electrical Supply Co., St. Louis, Mo.
Electrical Supplies.
Alexander, Jr., Co., S. B., Charlotte, N. C.
Bar & Elam, Greensboro, N. C.
Electrical Material Co., Baltimore, Md.
Electric Supply Co., Savannah, Ga.
Ewing-Merkle Electric Co., St. Louis, Mo.
Florida Electric Co., Jacksonville, Fla.
General Electric Co., Schenectady, N. Y.
Guarantees Electric Co., Chicago, Ill.
Kentucky Electrical Co., Owensboro, Ky.
New York & Ohio Co., Warren, O.

FUEL BURNING APPLIANCES.

ROCKWELL ENGINEERING CO.,
36 Cortlandt Street,

OIL FURNACES
FOR EVERY
PURPOSE.

Concrete Steel Construction,
Ransome System.
FRINK & HAZEN,
CONSULTING AND CONTRACTING ENGINEERS,
711 Union Trust Building, Baltimore, Md.
Buildings—STEEL—Bridges.

GEO. W. KNOX, M. A. I. E. E.

JAS. Z. GEORGE, A. M. A. I. E. E.; J. M. A. S. M. E.

KNOX, GEORGE & CO.

Consulting Engineers.

Design Build and Operate Electric Railway,
Lighting and Power Transmission Systems;
Gas Plants, Pumping Plants for Water Supply,
Drainage and Irrigating Systems, etc.

OFFICES:

Fisher Building, CHICAGO.

Tulane-Newcomb Building, NEW ORLEANS.

CHATTANOOGA ROOFING & FOUNDRY CO.

Formerly CHATTANOOGA STEEL ROOFING CO.

Manufacturers of all kinds of

ROOFING AND CASTINGS,

Store Fronts, Columns, Lintels, Sills,

GALVANIZED IRON WORK,

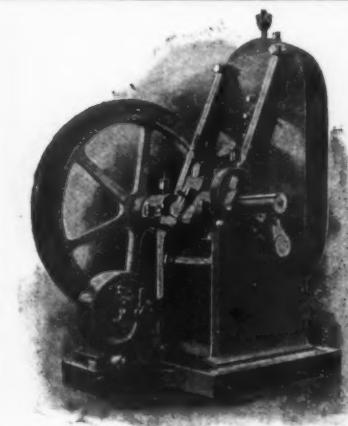
Awnings, Skylights and Cornice,

PATENT METAL SHINGLES, Tin and Galvanized.

All Styles Steel and Tin Roofing,

Drip Pans, Stove Pipe, Elbows, etc.

CHATTANOOGA, TENNESSEE.



Crocker-Wheeler Company,
Ampere, N. J.

Motors for the drive
of all sorts of machines
and tools.

Write for our bulletins.

FOR INFORMATION ABOUT

U. S. MAIL CHUTES,

WHICH ARE

A NECESSITY IN OFFICE BUILDINGS AND HOTELS.

Write to the sole makers,

THE CUTLER MFG. CO., Rochester, N. Y.

PATENTED.

AUTHORIZED.

HUGHES SPECIALTY WELL DRILLING CO.

Artesian and Oil Well Contractors

Wells drilled 3" to any diameter; 60' to 3000'

deep. Satisfaction guaranteed.

Deep Well Pumping Plants Installed. Air Lift

System a Specialty.

OFFICE ANDWAREROOMS,

S. E. Cor. Ashley Ave. and Montague Street,

CHARLESTON, S. C.

Bijou Bldg., 611 Penn Ave., Pittsburg, Pa.

Contracting and
Consulting
Engineer,

Long Distance Phone, 3174.

P. C. BRENNAN,

Consulting and Mining Engineer.

Asphalt reported on from the Deposit to the Street.

Power Measured and Valves Adjusted. Oil Drilling Apparatus. General Designing and Complete Plants Contracted for and Capacity Guaranteed.

Hydraulic Engineer.

MINING & DEVELOPMENT CO.

N. Y. Office, 41 Wall St.

194 Nott Ave., Long Island City, N. Y.

Long Distance Phone, 3174.

Long Distance Phone, 3174.

Map of Birmingham and vicinity for sale.

1909½ 1st Ave., Birmingham, Ala.

Map of Birmingham and vicinity for sale.

1909½ 1st Ave., Birmingham, Ala.

Map of Birmingham and vicinity for sale.

1909½ 1st Ave., Birmingham, Ala.

Map of Birmingham and vicinity for sale.

1909½ 1st Ave., Birmingham, Ala.

Map of Birmingham and vicinity for sale.

1909½ 1st Ave., Birmingham, Ala.

Map of Birmingham and vicinity for sale.

1909½ 1st Ave., Birmingham, Ala.

Map of Birmingham and vicinity for sale.

1909½ 1st Ave., Birmingham, Ala.

Map of Birmingham and vicinity for sale.

1909½ 1st Ave., Birmingham, Ala.

Map of Birmingham and vicinity for sale.

1909½ 1st Ave., Birmingham, Ala.

Map of Birmingham and vicinity for sale.

1909½ 1st Ave., Birmingham, Ala.

Map of Birmingham and vicinity for sale.

1909½ 1st Ave., Birmingham, Ala.

Map of Birmingham and vicinity for sale.

1909½ 1st Ave., Birmingham, Ala.

Map of Birmingham and vicinity for sale.

1909½ 1st Ave., Birmingham, Ala.

Map of Birmingham and vicinity for sale.

1909½ 1st Ave., Birmingham, Ala.

Map of Birmingham and vicinity for sale.

1909½ 1st Ave., Birmingham, Ala.

Map of Birmingham and vicinity for sale.

1909½ 1st Ave., Birmingham, Ala.

Map of Birmingham and vicinity for sale.

1909½ 1st Ave., Birmingham, Ala.

Map of Birmingham and vicinity for sale.

1909½ 1st Ave., Birmingham, Ala.

Map of Birmingham and vicinity for sale.

1909½ 1st Ave., Birmingham, Ala.

Map of Birmingham and vicinity for sale.

1909½ 1st Ave., Birmingham, Ala.

Map of Birmingham and vicinity for sale.

1909½ 1st Ave., Birmingham, Ala.

Map of Birmingham and vicinity for sale.

1909½ 1st Ave., Birmingham, Ala.

Map of Birmingham and vicinity for sale.

1909½ 1st Ave., Birmingham, Ala.

Map of Birmingham and vicinity for sale.

1909½ 1st Ave., Birmingham, Ala.

Map of Birmingham and vicinity for sale.

1909½ 1st Ave., Birmingham, Ala.

Map of Birmingham and vicinity for sale.

1909½ 1st Ave., Birmingham, Ala.

Map of Birmingham and vicinity for sale.

1909½ 1st Ave., Birmingham, Ala.

Map of Birmingham and vicinity for sale.

1909½ 1st Ave., Birmingham, Ala.

Map of Birmingham and vicinity for sale.

1909½ 1st Ave., Birmingham, Ala.

Map of Birmingham and vicinity for sale.

1909½ 1st Ave., Birmingham, Ala.

Map of Birmingham and vicinity for sale.

1909½ 1st Ave., Birmingham, Ala.

Map of Birmingham and vicinity for sale.

1909½ 1st Ave., Birmingham, Ala.

Map of Birmingham and vicinity for sale.

1909½ 1st Ave., Birmingham, Ala.

Map of Birmingham and vicinity for sale.

1909½ 1st Ave., Birmingham, Ala.

Map of Birmingham and vicinity for sale.

1909½ 1st Ave., Birmingham, Ala.

Map of Birmingham and vicinity for sale.

1909½ 1st Ave., Birmingham, Ala.

Map of Birmingham and vicinity for sale.

1909½ 1st Ave., Birmingham, Ala.

<p style="text-align: center

Old Dominion Portland Cement.

W. G. HARTRANFT CEMENT CO.

MANUFACTURED BY
VIRGINIA PORTLAND CEMENT CO.
CRAIGSVILLE, VA.

SOLE SELLING AGENT.

Real Estate Trust Building,
PHILADELPHIA, PA.

Carolina Portland Cement Co.

CHARLESTON, S. C. BIRMINGHAM, ALA.

Sole Selling Agents for North and South Carolina, Florida and Georgia. Lime, Rosendale Cement, Louisville Cement, Etc.

Full stocks of Portland Cement, Rosendale Cement and Plaster at Norfolk, Wilmington, Charleston and Savannah.



Maryland Lime & Cement Co.

217-219 Bowly's Whl. BALTIMORE, MD.

DISTRIBUTORS:—Lehigh Portland Cement—Rosendale Cement—Savage, Union, Somerset Fire Brick—Lime—Vitrified Salt-Glazed Sewer Pipe—Cal. Plaster—Limoid—Roofing Felts—Flue Linings—Chimney Tops, etc.

The Powhatan Clay Mfg. Co., RICHMOND, VA.

White, Buff, Speckled, Gray, Red and Iron Spot Bricks.

In All Sizes and Shapes. FIRE BRICK.

THE OHIO FIRE BRICK CO. OAK HILL, OHIO.

Manufacturers of High - Grade Fire Brick for Blast Furnaces. Ask us for delivered prices.

LEHIGH Portland Cement



High Tensile Strength, Finely Ground, Light and Uniform in Color.

Southern and Western Distributors:

THE KELLEY ISLAND LIME & TRANSPORT CO. CLEVELAND, OHIO.

For Southern Work—

RIDGEMONT ROSENDALE CEMENT

Combines Lowest Cost with certainty of highest test and uniformity.

Fifty years in use on important Railroad, Government and Municipal work.

RIDGEMONT CEMENT MFG. CO. IRONVILLE, VA.



ROYAL, MUNICIPAL, AMERICAN PORTLANDS.

Warner's Hydraulic, Warner's Improved Hydraulic, Lime, "Limoid" Plaster, Sewer Pipe, etc.

CHARLES WARNER COMPANY,
New York, Wilmington, Philadelphia.

THE FINEST CEMENTS

Lehigh Brand
—
Dexter BrandSOUTHEASTERN
LIME & CEMENT
CO.
Charleston, S. C.
Southern DistributorsIMPORTERS
PORTLAND CEMENT.
C. M. GILBERT & CO., SAVANNAH, GA.

The Old Reliable Over 10,000,000 Barrels OF "Giant" Portland—"Improved Union"—"Union" CEMENT

Used on the Most Important Work in the United States.

AMERICAN CEMENT CO.

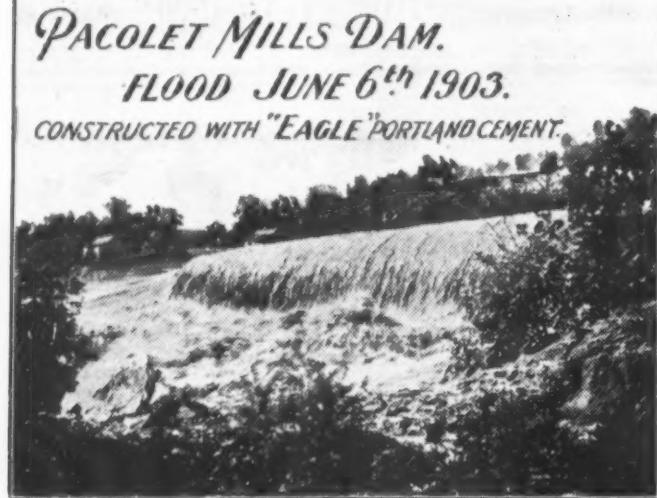
22 South 15th Street, PHILADELPHIA, PA.

AGENCIES:

LESLEY & TRINKLE CO.
22 South 15th Street,
PHILADELPHIA, PA.UNITED BUILDING MATERIAL CO.
13-21 Park Row, NEW YORK.
101 Milk Street, BOSTON, MASS.

RANSOME'S Concrete Steel Construction

For FACTORIES, WAREHOUSES, ETC. Detailed information promptly furnished.

RANSOME & SMITH CO., II Broadway New York.
CONSULTING CONCRETE ENGINEERS.

SHOWING WATER 32 FEET ABOVE THE TOP OF THE DAM.

THE EAGLE PORTLAND CEMENT

has been imported by us for 15 years—was used in the construction, amongst others, of the dam at "Pacolet," "Lockhart," "Pelzer," "Tucapau," "Whitney" and "Henrietta" Mills, which dams were so severely tested in the recent flood.

We also carry in our warehouses "Dragon," "Alpha," "Hoffman" Cements. Correspondence solicited.

William M. Bird & Co.,
Charleston, S. C.

Ransome Concrete Mixers

designed by specialists for their own use, combine with the highest efficiency an economy greater than is attained by any other machine.

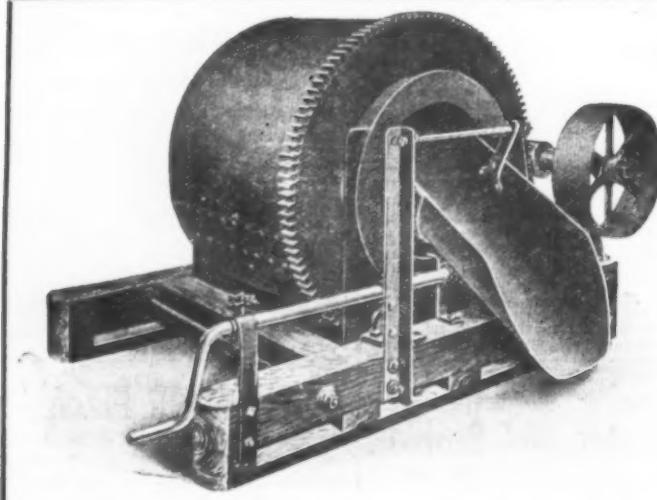
Ransome Concrete Machinery Co.

Concrete Machinery and Appliances,

Twisted Steel, Etc.

11 Broadway, New York.

OUR AGENTS CARRY STOCK

H. CHANNON CO., Chicago.
NORMAN B. LIVERMORE CO., San Francisco.
JAMES COOPER, Montreal, Can.
GEORGE COOPER, Pittsburgh, Pa.Equal to many PORTLAND Brands of Cement.
LABORATORY TESTS OF

Cumberland Hydraulic Cement.

FINENESS.

Sieve.	50 mesh.	100 mesh.	200 mesh.
Fineness.....	98	85	75

TENSILE STRENGTH.

Average of highest and lowest tests.

Time.	Neat.	2 parts sand.	3 parts sand.
24 hours.....	150	Quartz Sand used.	
7 days.....	275	200	150
60 days.....	300	250	200
90 days.....	325	300	225
120 days.....	375	350	250
165 days.....	400	425	300
	475	525	400

Boiling test, 24 hours, good.

The Cumberland Hyd. Cement & Mfg. Co.

P. O. Box 264,

CUMBERLAND, MD.

If you wish to keep posted on the progress of the South, read the Manufacturers' Record. Price \$4 a year.

CLASSIFIED INDEX OF ARTICLES ADVERTISED

FOR ALPHABETICAL INDEX SEE PAGE 30.

Engravers.
Alpha Photo-Engraving Co., Baltimore, Md.
Baltimore-Maryland Engraving Co., Baltimore, Md.
Middletown, J. W., Chicago, Ill.

Excelsior Machines.
American Excelsior & Machine Co., Baltimore, Md.
Gibbs, W. H., & Co., Columbia, S. C.

Exhaust Heads.
Burt Mfg. Co., Akron, O.

Expansion Belts.
N. J. Foundry & Machine Co., New York, N. Y.

Fans. (Electric.)
Electrical Material Co., Baltimore, Md.
General Electric Co., Schenectady, N. Y.
Westinghouse Electric & Mfg. Co., Pittsburgh, Pa.

Fans. (Vestilating.) [See Blowers, Exhaust Fans.]

Feed-Water Heaters and Purifiers.

Bates Machine Co., Jersey City, N. J.

Gibbs, W. H., & Co., Columbia, S. C.

Greenwood Economizer Co., Mattoon, Ill.

Greenwald Co., I. & E., Cincinnati, O.

Kelley, Banj. F., & Son, New York, N. Y.

McAdoo, Thomas, Philadelphia, Pa.

National Pipe Bending Co., New Haven, Conn.

Petroleum Iron Works Co., Washington, Pa.

Scatte, Wm. B., & Sons Co., Pittsburgh, Pa.

Stilwell-Bierce & Smith-Vaile Co., Dayton, O.

Webster & Co., Warren, Camden, N. J.

Feltting. (Hair.)

Baeder, Adamson & Co., Philadelphia, Pa.

Fencing. (Iron, Steel, Wire.)

Bell-Irving Wire Works Co., J. E., Detroit, Mich.

Buffalo Wire Works Co., Buffalo, N. Y.

Dufur & Co., Baltimore, Md.

Eureka Stock Co., Chattanooga, Tenn.

Lindlow-Saylor Wire Co., St. Louis, Mo.

New Jersey Wire Cloth Co., Trenton, N. J.

Wisconsin Iron & Wire Works, Milwaukee, Wis.

Fertilizer Machinery. [See Phosphate Mch.]

Files.

Barnett Co., G. & H., Philadelphia, Pa.

Miller Oil & Supply Co., Indianapolis, Ind.

Nicholson File Co., Providence, R. I.

Filler. (Iron.)

Obermayer, S. Co., Cincinnati, O.

Wisconsin Graphite Co., Pittsburgh, Pa.

Filters. (Water.)

Scalfe, Wm. B., & Sons Co., Pittsburgh, Pa.

Filters. (Oil.)

Burt Mfg. Co., The Akron, O.

Filter Presses.

Johnson, J., & Co., New York, N. Y.

Stilwell-Bierce & Smith-Vaile Co., Dayton, O.

Fire Extinguishers.

Bader Fire Extinguisher Co., Boston, Mass.

General Fire Extinguisher Co., Providence, R. I.

Fire Escapes.

Bolles Iron & Wire Works, J. E., Detroit, Mich.

Flexible Joints.

Moran Flexible Joint Co., Louisville, Ky.

Floors. (Hardwood.)

Adams, J. M., Baltimore, Md.

Forman, Thomas, Co., Detroit, Mich.

Wilce Co., The T., Chicago, Ill.

Floor and Grist Mill Machinery and Supplies.

Allis-Chalmers Co., Chicago, Ill.

Bartlett, C. O., & Snow Co., Cleveland, O.

Caldwell, H. W., & Son Co., Chicago, Ill.

DeLoach Mill Mfg. Co., Atlanta, Ga.

Gibbs, W. H., & Co., Columbia, S. C.

Nordyke & Marmon Co., Indianapolis, Ind.

Sprout, Waldron Co., Munsey, Pa.

Starr, B. F., & Co., Baltimore, Md.

Wolf Co., Charlestown, Pa.

Fine Scrapers. (For Boilers.)

Gem Mfg. Co., Pittsburgh, Pa.

Forges.

Starrett Co., B. F., Boston, Mass.

Foundry Equipment and Supplies.

Obermayer, S. Co., Cincinnati, O.

Friction Clutches.

Brown, A. & F., New York, N. Y.

Fuel Economizer.

Green Fuel Economizer Co., Mattawan, N. Y.

Fuel Oil Equipment.

Petroleum Iron Works Co., Washington, Pa.

Rockwell Engineering Co., New York, N. Y.

Furnace Builders.

Kennedy, Walter, Pittsburgh, Pa.

Means & Fulton Iron Works, Birmingham, Ala.

Furnaces. (Metallurgical.)

Rockwell Engineering Co., New York, N. Y.

Gages (Recording) and Counters.

Amer. Steam Gauge & Valve Mfg. Co., Boston, Mass.

Crosby Steel Gage & Valve Co., Boston, Mass.

Galvanized Sheets.

American Sheet Steel Co., New York, N. Y.

Bourne-Fuller Co., Cleveland, O.

Gas Compressors.

Brown-Cochran Co., Lorain, O.

Gas Meters.

Pittsburg Meter Co., E. Pittsburg, Pa.

Gas Producers.

Wood, R. D., & Co., Philadelphia, Pa.

Gas and Steam Filters Tools.

Saunders' Sons, D., Yonkers, N. Y.

Simmons, John, Co., New York City.

Gaskets.

Boston Belting Co., Boston, Mass.

N. J. Car Spring & Rubber Co., Jersey City, N. J.

Peerless Rubber Mfg. Co., New York, N. Y.

Voorhees Mfg. Co., Jersey City, N. J.

Gear Cutting Machines.

Whiton Machine Co., D. E., New London, Conn.

Gearings.

Brown, A. & F., Co., New York, N. Y.

Caldwell, H. W., & Son Co., Chicago, Ill.

Cook Mfg. Co., Columbus, O.

Chester Steel Casting Co., Philadelphia, Pa.

Fairmount Machine Co., Philadelphia, Pa.

Jeffrey Mfg. Co., The Columbus, O.

Greenwald Co., I. & E., Cincinnati, O.

Link-Belt Engineering Co., Philadelphia, Pa.

Nordyke & Marmon Co., Indianapolis, Ind.

Taylor Iron & Steel Co., High Bridge, N. J.

Tompkins, D. A., Co., Charlotte, N. C.

Woods, T. B., Sons, Chambersburg, Pa.

Geologists.

Catlett, Chas., Staunton, Va.

Froehling & Robertson, Richmond, Va.

Governor. (Water Wheel.)

Repliglo Governor Works, Akron, Ohio.

Graphite.

Detroit Graphite Mfg. Co., Detroit, Mich.

Dixon Crucible Co., Inc., Jersey City, N. J.

International Acheson Graphite Co., Niagara Falls, N. Y.

Obermayer, S. Co., Cincinnati, O.

Wisconsin Graphite Co., Pittsburgh, Pa.

Grates and Grate Bars.

McClave-Brooks Co., Scranton, Pa.

Miller Oil & Supply Co., Indianapolis, Ind.

Sanford-Day Iron Works, Knoxville, Tenn.

Grain Elevator Supplies.

Caldwell, H. W., & Son Co., Chicago, Ill.

Jeffrey Mfg. Co., Columbus, O.

Link-Belt Engineering Co., Nicetown, (Phila.) Pa.

MANUFACTURERS' RECORD.

FOR ALPHABETICAL INDEX SEE PAGE 30.

Grease. (Lubricating.)

Cook's Sons, Adam, New York, N. Y.

Robinson, Wm. C., & Son, Baltimore, Md.

Grinding and Polishing Machinery.

Abrasive Material Co., The, Philadelphia, Pa.

Carborundum Co., The, Niagara Falls, N. Y.

Monarch Emery & Cor'dum Wheel Co., Camden, N. J.

Norton Emery Wheel Co., Worcester, Mass.

Vitrified Wheel Co., Westfield, Mass.

Groovers.

Huthier Bros., Rochester, N. Y.

Smith, H. B., Machine Co., Smithville, N. J.

Gunpowder.

Peters Cartridge Co., Cincinnati, O.

Hammers. (Steam, Power, Pneumatic.)

Rand Drill Co., New York, N. Y.

Robinson, J. M., Mfg. Co., Cincinnati, O.

Savannah Locomotive & Car Works, Savannah, Ga.

Handle Mch. [See Woodworking Mch.]

Fay, J. A., & Egan Co., Cincinnati, O.

Hoek, B. M., York, Pa.

Hardware Specialties.

Wrightsville Hardware Co., Wrightsville, Pa.

Hay Tools.

Myers & Bro., F. E., Ashland, O.

Heating Apparatus.

Americana Blower Co., Detroit, Mich.

Andrews & Johnson Co., Chicago, Ill.

Boston Blower Co., Hyde Park, Mass.

Dixie Mfg. Co., Baltimore, Md.

Dowman-Dowd Mfg. Co., Atlanta, Ga.

Mountain Steam Generator Co., Baltimore, Md.

Peck-Hammond Co., The, Cincinnati, O.

Sturtevant, O., B. F., Boston, Mass.

Webster, Warren Co., Camden, N. J.

Holding Machinery.

Byers Machine Co., John F., Ravenna, O.

Contractors' Plant Mfg. Co., Buffalo, N. Y.

Flory, B. Mfg. Co., Bangor, Pa.

Hardside-Tynes Mfg. Co., Birmingham, Ala.

Hayward Co., New York, N. Y.

Jefco Mfg. Co., The, Columbus, O.

Linn-Bell Engine Co., Jersey City, N. J.

Lidgerwood Mfg. Co., New York, N. Y.

Males Co., The, Cincinnati, O.

Price, S. M., Machinery Co., Norfolk, Va.

Moyer, J. W., & Co., Philadelphia, Pa.

Rawson & Morrison Mfg. Co., Cambridge, Mass.

Sprague Canning Machinery Co., Chicago, Ill.

Sullivan Machinery Co., Chicago, Ill.

Hoists. (Electric.)

Pawling & Harnischfeger, Milwaukee, Wis.

Hoists. (Pneumatic, Motor.)

Rand Drill Co., New York, N. Y.

Horse Shoes.

Old Dominion Iron & Nail Works Co., Richmond, Va.

The Diamond Steel Steel Co., Wilmington, Del.

Hydrants.

Glamorgan Pipe & Foundry Co., Lynchburg, Va.

Ludlow Valve Mfg. Co., Troy, N. Y.

Wood, E. D., & Co., Philadelphia, Pa.

POWER
TRANSMISSION
APPLIANCES

TRAVELING
AND JIB

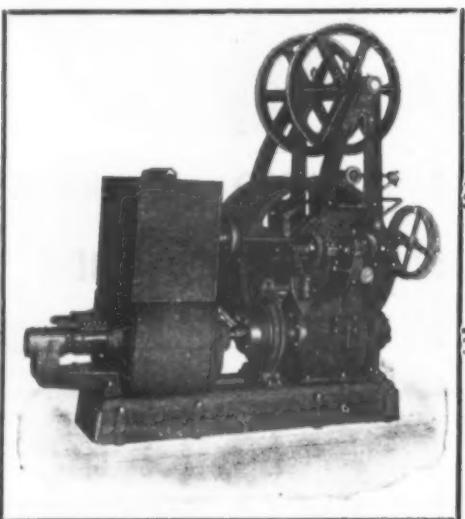
CRANES

THE
CASE MFG. COMPANY,
COLUMBUS, OHIO.

ELEVATORS

Electric
Passenger
and

Freight
Elevators.



This is machinery on which human life depends, and in equipping your building you cannot afford to take any chances. Our policy has been: "Be particular in the smallest detail. Do not cheapen production at the expense of the machine." By adhering to this we are enabled to sustain the reputation we have gained.

Write for information.

Louisville Elevator Company

INCORPORATED.

CHICAGO.

HOME OFFICE:
LOUISVILLE, KY.

ST. LOUIS.



Robins Conveying Belt Co.

19-22 PARK ROW NEW YORK CITY.

THE Kinkade & Liggett co.

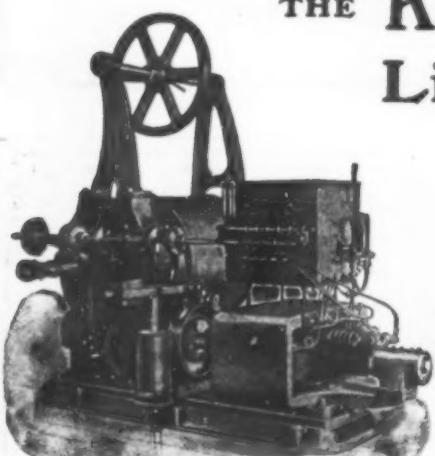
Passenger

and

Freight

ELEVATORS

COLUMBUS,
OHIO.

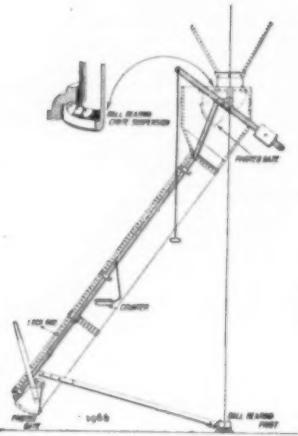


Chain Belting Sprockets and
CONVEYING MACHINERY.
THE C. O. BARTLETT & SNOW CO., CLEVELAND,
OHIO.

LINK-BELT ELEVATORS. CONVEYORS.

For Handling Coal and Ashes
Are Efficient and Economical.

Illustration shows a Measuring and Distributing Spout used in places where it is desired to measure the coal consumed and spread it on the floor in front of the boiler.



The connection between the hopper and the chute is ball-bearing, and so nicely balanced that the entire chute and load can be swung round with the little finger. Each charge fed into the chute is registered on the counter.

LINK-BELT ENGINEERING CO.

Nicetown, Philadelphia.

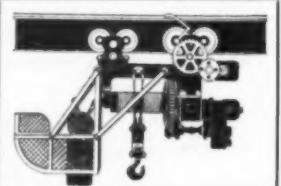
New York :
49 Dey St.

Pittsburgh :
Park Bldg.

Savannah :
Sorrel Bldg.

Chicago : Link-
Belt Mach. Co.

TRAVELING ELECTRIC HOISTS



PAWLING & HARNISCHFEGER
248 Oregon Street, MILWAUKEE, U. S. A.

THE HAVEN ELEVATOR CO.

CINCINNATI, O.

High Service Elevators, Passenger, Freight, Hydraulic
Electric, Belt and Hand Power. Write for Estimates

CRANES
ELECTRIC
CRANES
HAND
CRANES
JIB

For Every Service.

McClave,
Hamilton & Co.

85-89 Liberty St.,

NEW YORK, N. Y.

BATES'
Hand Elevators.

30,000 in use.
60 years in the Elevator business.

JAMES BATES' SONS,
BALTIMORE, MD.

FREIGHT ELEVATORS,

Hand and Belt Power.

POWER HOGSHEAD SCREWS.

THE J. B. WESTBROOKS FOUNDRY
AND MACHINE CO.

DANVILLE, VIRGINIA.

General Founders and Machinists.

Freight Elevators

FOR
Hand, Belt and
Electric Power.

PARKHURST BROS. & CO., Indianapolis, Ind.



Classified Index of Articles Advertised

FOR ALPHABETICAL INDEX See Page 30

Knitting Machinery.
Campbell & Clark Machine Co., Cohoes, N. Y.
Mayo Knit. Mch. & Needle Co., Franklin Falls, N. H.
McMichael & Wildman Mfg. Co., Norristown, Pa.
N.Y. & Tredick Co., Philadelphia, Pa.
Ruth Auto. Knitting Machine Co., York, Pa.
Scott & Williams, Philadelphia, Pa.

Lamps. (Arc and Incandescent.)
Alexander, Jr., Co., S. B., Charlotte, N. C.
Electrical Material Co., Baltimore, Md.
Electric Supply Co., Savannah, Ga.
General Electric Co., Schenectady, N. Y.
Kentucky Electrical Co., Owensboro, Ky.
New York & Ohio Co., Warren, O.
Piedmont Electric Co., Asheville, N. C.
Shelby Electric Co., Shelby, O.
Standard Electric Co., Norfolk, Va.
Westinghouse Electric & Mfg. Co., Pittsburgh, Pa.

Lamp & Master. (Incandescent.)
Incandescent Elec. Lgt. Mfg. Co., Boston, Mass.

Lamp Heater. (Incandescent.)
Incandescent Elec. Lgt. Manipulator Co., Boston, Mass.

Lamp Shades & Guards. (Incandescent.)
Incandescent Elec. Lgt. Manipulator Co., Boston, Mass.

Lands.
Abbott, F. C. & Co., Charlotte, N. C.
Brooks, Fendig & Co., Brunswick, Ga.
Clark, Chas. E., Augusta, Ga.
Martin & Bro., Augusta, Ga.
Richards, M. V., Land & Industrial Agt., Wash., D. C.
Sutherland, Howard, Land Agent, Elkins, W. Va.
Southern Pacific, Houston, Tex.

Latson. R. E., Atlanta, Ga.

Winegar. O. H., St. Louis, Mo.

Lathes. (Engine.)
Baird Mch. Co., Pittsburgh, Pa.
Marshall, J. F., & Co., Rockford, Ill.
Gibson, W. H., Co., Columbia, S. C.

Robinson, W. G., Co., New York, N. Y.
McCabe, J. J., New York, N. Y.

Price, S. M., Machinery Co., Norfolk, Va.
Savannah Loco. Works & Supply Co., Savannah, Ga.
Schumacher & Boye, Cincinnati, O.

Walke, Henry, Co., Norfolk, Va.

Laundry Machinery.
Adams Laundry Machinery Co., Troy, N. Y.

Dawson, A. L., & Co., Chicago, Ill.

Sinclair Co., N. H., Chicago, Ill.

Wilson Laundry Machinery Co., Columbia, Pa.

Lend. (Sheet.)
Robertson Mfg. Co., James, Baltimore, Md.

Lens and Tint. (Pig.)
Hertz Theat. Metal Co., St. Louis, Mo.

Ryan & Co., J. J., Chicago, Ill.

Letters. (PATTERN.)
Brin, A. W., Seneca Falls, N. Y.

Lime.
Carolina Portland Cement Co., Charleston, S. C.
Maryland Lime & Cement Co., Balt., Md.

Southeastern Lime & Cement Co., Charleston, S. C.
Warner, Charles Co., Wilmington Del.

Locomotive Builders.
American Locomotive Co., New York, N. Y.

Baldwin Locomotive Works, Philadelphia, Pa.

Byers, Jno. F., Mch. Co., Ravenna, O.

Climax Mfg. Co., Corry, Pa.

Low, Edgar S., Co., Pittsburgh, Pa.

Males Co., Cincinnati, O.

Porter, H. K., Co., Pittsburgh, Pa.

Loom Harness.
American Supply Co., Providence, R. I.

Looms and Weaving Machinery.
American Supply Co., Providence, R. I.

Drapes Co., Hopedale, Mass.

Fairmount Machine Co., Philadelphia, Pa.

Kilburn, Lincoln & Co., Fall River, Mass.

Linen Machine Shop, Boston, Mass.

Marshall Machine Works, Taunton, Mass.

Tompkins, D. A., Co., Charlotte, N. C.

Lubricating Compounds.

Gaines Signal Oil Co., Gainesville, Pa.

Robinson, Wm. C., & Sons Co., Baltimore, Md.

Cook's, Adam, Sons, New York, N. Y.

Lubricators and Oil Cups.

Cook's Sons, Sons, New York, N. Y.

Crosby Steam Gage & Valve Co., Boston, Mass.

Detroit Lubricator Co., Detroit, Mich.

Lunkenheimer Co., Cincinnati, O.

Pemberthy Injector Co., Detroit, Mich.

Lumber.

Kilbourn Lumber Co., Houston, Tex.

Price & Head, Baltimore, Md.

Red Cypress Lumber Co., Macon, Ga.

Slosson Lumber Co., Macon, Ga.

Machinery. (Special.)

Eclipse Mch. Co., Chicago, Ill.

Leffler, Charles & Co., Brooklyn, N. Y.

Moshann Mfg. Co., Philadelphia, Pa.

Boyd's Foundry & Machine Co., Royston, Pa.

Machinery Bargains. (NEW & SEC. HAND.)

Amet, Geo. E., New York, N. Y.

American, Chicago, Ill.

American Elect. Supply & Mfg. Co., New York, N. Y.

Austin, John S., Bro., Atlanta, Ga.

Baker, H. G., & Co., Philadelphia, Pa.

Bennett, G. L., New York, N. Y.

Bowen & Street Equipment Co., Norfolk, Va.

Braden, Jas. S., New York, N. Y.

Brown & Zornau, Machinery Co., Pittsburgh, Pa.

Caine & Pitts, Philadelphia, Pa.

Carlton Mch. & Supply Co., Allegheny, Pa.

Casey, D. L., Mch. Co., Springfield, O.

Chicago House Wrecking Co., Chicago, Ill.

Cleveland Belting & Machinery Co., Cleveland, O.

Clyde Mch. Works, Chicago, Ill.

Columbus Supply Co., Columbus, S. C.

Columbus Iron & Steel Co., Columbus, O.

Contractors' Equipment Co., Philadelphia, Pa.

Contractors' Supply Co., Pittsburgh, Pa.

Contractors' Supply Co., Chicago, Ill.

Cox, John F., & Co., Ltd., Philadelphia, Pa.

DeWitt, W. F., Birmingham, Ala.

Driscoll, John T. & Co., Chicago, Ill.

Fidelity Machine & Metal Co., Philadelphia, Pa.

Girard Machine & Tool Co., Philadelphia, Pa.

Hanley, Wm., Bradford, Pa.

Hartfelder-Garrett Co., Savannah, Ga.

Hiltner, H. A., Sons, Philadelphia, Pa.

Huntington Machinery & Supply Co., Wilkes-Barre, Pa.

Kaiser, A. V., & Co., Philadelphia, Pa.

Kennedy, L. E., & Co., New York, N. Y.

Kohn, J. W., & Co., Cleveland, O.

Lehman, Charles T., Birmingham, Ala.

Lodge & Shipley Mch. Tool Co., Cincinnati, Ohio.

Lucas, J. C. M., Baltimore, Md.

Mallory, J. P., Baltimore, Md.

Mengel & Schleicher Exchange, Baltimore, Md.

Patterson & Co., Philadelphia, Pa.

Price Machinery Co., Chicago, Ill.

Rosister, MacGowan & Co., New York, N. Y.

Samuel, Frank, Philadelphia, Pa.

Saxton, J. G., New York, N. Y.

Sayfert's, L. F., Sons, Philadelphia, Pa.

Shaw, Willis, Chicago, Ill.

Stewart, John A., Electric Co., Cincinnati, O.

Straub Machinery Co., Cincinnati, O.

Thompson, Son & Co., New York, N. Y.

Toomey, Frank, Philadelphia, Pa.

Waters, John A., & Co., Richmond, Va.

Wicker Bros., Pittsburgh, Pa.

Wolf, L., & Bro., Cincinnati, O.

Wood & Co., Chicago, Ill.

Machine Tools.

Baird Mch. Co., Pittsburgh, Pa.

Barnes, W. F., & Co., Rockford, Ill.

Bickford Drill & Tool Co., Cincinnati, O.

Cincinnati Milling Machine Co., Cincinnati, O.

Greaves, Klusman & Co., Cincinnati, O.

Lands Tool Co., Waynesboro, Pa.

McCabe, J. J., New York, N. Y.

Pratt & Whitney, Hartford, Conn.

Price, S. M., Machinery Co., Norfolk, Va.

Savannah Loco. Works & Supply Co., Savannah, Ga.

Schumacher & Boye, Cincinnati, O.

Walks, Harry, Co., Norfolk, Va.

Mail Chutes.

Otter Mfg. Co., Rochester, N. Y.

Mattresses.

Perfection Mattress Co., Birmingham, Ala.

Mechanical Draft.

Allington & Curtis, Saginaw, Mich.

American Blower Co., Detroit, Mich.

Andrews & Johnson Co., Chicago, Ill.

Boston Blower Co., Hyde Park, Mass.

Dixie Mfg. Co., Baltimore, Md.

Harford Blower Co., Hartford, Conn.

Shuttlecock & Co., Boston, Mass.

Mercantile Agencies.

International Mercantile Agency, New York, N. Y.

Merry-Go-Rounds.

Herschell-Spillman & Co., North Tonawanda, N. Y.

McIntire, P. C., & Co., Charlotte, N. C.

Metal-Working Machinery.

Baird Mch. Co., Pittsburgh, Pa.

Barnes, W. F., & Co., Rockford, Ill.

Bartsch & Co., Cambridge City, Ind.

Bickford Drill & Tool Co., Cincinnati, O.

Cincinnati Milling Machine, Cincinnati, O.

Gibbs, W. H., & Co., Columbus, S. C.

Greaves, Klusman & Co., Cincinnati, O.

Landis Tool Co., Waynesboro, Pa.

McGill, J. New York, N. Y.

Niagara Mfg. Co., Niagara Falls, N. Y.

Pratt & Whitney Co., Hartford, Conn.

Price, S. M., Machinery Co., Norfolk, Va.

Robinson, J. M., Mfg. Co., Cincinnati, O.

Royersford Foundry & Machine Co., Royersford, Pa.

Savannah Loco. Works & Supply Co., Savannah, Ga.

Schumacher & Boye, Cincinnati, O.

Walks, Harry, Co., Norfolk, Va.

Whitton Machine Co., D. E., New London, Conn.

Meters. (Gas.)

Pittsburgh Meter Co., E. Pittsburgh, Pa.

Pittsburgh Meter Co., E., Pittsburgh, Pa.

Worthington, Henry H., New York, N. Y.

Mill Engineers and Architects.

Collier & Brown, Atlanta, Ga.

Dyer, D. H., & Son, Fall River, Mass.

MacDonald & Gilligan, Providence, R. I.

Prasch, C. A. M., & Co., Providence, R. I.

Shaw, Fred G., Augusta, Ga.

Tompkins, D. A., Co., Charlotte, N. C.

Whaley, W. B. Smith & Co., Columbia, S. C.

Wheeler & Bangs, Charlotte, N. C.

Milling Machines.

Bailey-Levy Co., Charleston, S. C.

Baird Mch. Co., Pittsburgh, Pa.

Cincinnati Milling Machine Co., Cincinnati, O.

Walke, Henry, Co., Norfolk, Va.

Mill Supplies.

Alexander, S. B., Jr., Co., Charlotte, N. C.

Bailey-Levy Co., Charleston, S. C.

Cameron & Barkley Co., Charleston, S. C.

Canal Mfg. Co., Columbus, O.

Gainesville Iron Works, Gainesville, Ga.

Givens & Co., Cincinnati, O.

Greenwald & Stone Machine Co., Hollidaysburg, Pa.

Mecklenburg Iron Works, Charlotte, N. C.

BUY YOUR
Genuine
Bangor
Roofing
SLATE

Direct from the

MANUFACTURER

GENUINE BANGOR SLATE
COMPANY,

EASTON,

PENNA.

LIGHT LOCOMOTIVES.
All Gauges, Sizes and Designs.

Steam and Compressed Air.

6th Edition Catalogue mailed free to intending purchasers (or to accommodate others on receipt of 50c. in stamps).

H. K. PORTER CO.

6th Ave., PITTSBURG, PA.

Locomotives, narrow and wide gauge on hand.

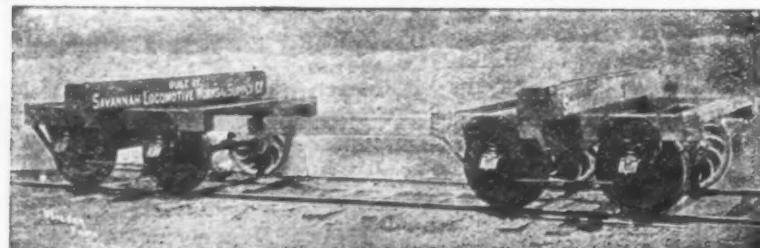


ROSS-MEEHAN FOUNDRY CO.

Chattanooga,
Tennessee.

GREY & MALLEABLE
IRON FOUNDERS.
M.G.B. COUPLERS.

CASTINGS



OPEN HEARTH STEEL CASTINGS

Diamond Drill &
Machine Co.
Birdsboro, Penna.

PATTERNS

EVERY SIZE AND DESCRIPTION

**WILKS
FOUNDRY COMPANY,**
TOLEDO, OHIO.

CASTINGS

FROM 1 OZ. TO 30 TONS
TWO SHOPS FOR LIGHT AND HEAVY WORK
STRICTLY A JOBBING FOUNDRY



No. 120 H.

CENTER REAMERS,
Included Angle of Point 60°.



**MORSE TWIST DRILL &
MACHINE CO.**

NEW BEDFORD, MASS.

We make a large line of Reamers,
many kinds and styles.

HOOPES & TOWNSEND CO.

Philadelphia, Pa.

MAKE

BOLTS

Square and Hexagon Heads.

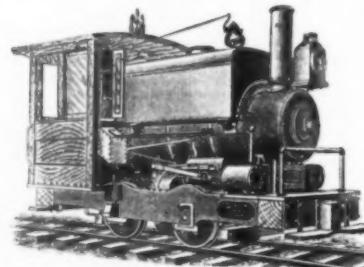
3/16 in. x 3/8 in. to 6 in. x 16 ft.

THE JOHN F. BYERS MACHINE CO.

RAVENNA, OHIO.

Manufacturers of

**Hoisting Engines,
LOCOMOTIVES,
Derrick Cars, Derrick Irons,
ETC.**



WRITE FOR CATALOGUE "G."

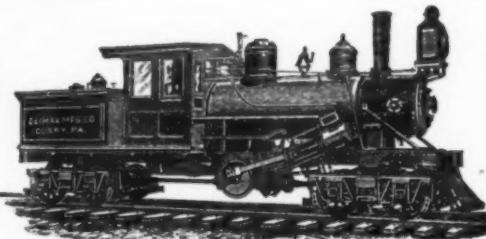
CLIMAX

Geared Locomotives,

For Wood or
Iron Rail.

Send for Illustrated Catalog.

CLIMAX MFG. CO.
CORRY, PA.



HAND POWER ELEVATORS

CAPACITY 500 TO 2000 LBS.
CATALOGUE FREE.
J. G. SPEIDEL, READING, PA.

LOGGING TRUCKS.

The lumber trade uses our specialty—LOGGING TRUCKS, wheels 24" to 33," This truck does away with arch bars and wheels are easily replaced.

We rent or sell locomotives, cylinders 13x24 to 18x24; weight 20 to 30 tons; drivers from 54 to 60; standard gauge; all types and reasonable prices.

This machinery is good.

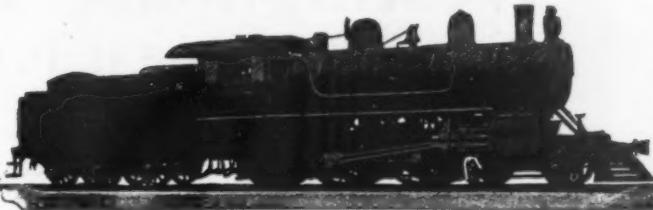
Savannah Locomotive Works & Supply Co.,
Savannah, Ga.

Classified Index of Articles Advertised FOR ALPHABETICAL INDEX See Page 30.

Parquetry. Adams, J. M., Baltimore, Md.
Paste. (Graphite Pipe Joint.) Wisconsin Graphite Co., Pittsburgh, Pa.
Pattern Makers' Machinery. Fay, J. A., & Egan Co., Cincinnati, O.
Patterns. (Metal.) Richmond Pattern Works, Richmond, Va.
Ryan. Ryan, J. J., & Co., Chicago, Ill.
Wilk's Foundry Co. Toledo, O.
Pastes &c. (Wooden.) Richmond Pattern Works, Richmond, Va.
Paving Material. Wilks Foundry Co., Toledo, O.
Barrett Mfg. Co. Philadelphia, Pa.
National Roofing & Supply Co. Louisville, Ky.
Perforated Metal. Atchison Perforated Metal Co., Robert, Chicago, Ill.
Baldwin. A. J., Co., Garwood, N. J.
Caldwell. H. W., & Son Co., Chicago, Ill.
Harrington & King Perforating Co. Chicago, Ill.
Hendrick Mfg. Co. The, Ltd., Carbondale, Pa.
Ludlow-Saylor Wire Co. The, St. Louis, Mo.
Mundt, Charles, & Sons. New York, N. Y.
Sullivan, John R., & Sons. New York, N. Y.
Petroleum. (Fuel.) Gulf Refining Co., Pittsburgh, Pa.
Phosphate Machinery. Ballay-Lebby Co., The, Charleston, S. C.
Bradley Pulverizer Co. Boston, Mass.
Cameron & Barkley Co. Charleston, S. C.
Crescent Co. Geo. V., New York, N. Y.
Foos Mfg. Co. Springfield, O.
Kent Mill Co. New York, N. Y.
Link-Belt Engineering Co. Philadelphia, Pa.
McLanahan-Stone Machines Co. Hollidaysburg, Pa.
Raymond Bros. Impact Pulverizer Co. Chicago, Ill.
Simpson. J. S., & G. F., Brooklyn, N. Y.
Tompson, D. A., & Co. Charlotte, N. C.
Valk & Murdoch Iron Works. Charleston, S. C.
Walker & Elliott. Wilmington, Del.
Phosphor Bronze. (Wire Rods, Sheets.) Ryan, J. J., & Co., Chicago, Ill.
Phosphor Bronze Smelting Co., Ltd. Philadelphia, Pa.
Van Duzen, E. W., Co. Cincinnati, O.
Pianos and Organs. Stoff, Charles M., Baltimore, Md.
Pig Iron. Alabama Con. Coal & Iron Co., Birmingham, Ala.
Burner-Fuller Co. Cleveland, O.
Piling. International Crossing & Const. Co., Galveston, Tex.
West Pascagoula Creosote Works. W. Pascagoula, Miss.
Pipes. (Black.) Caldwell, W. E., Co., Louisville, Ky.
Crescent Co. Geo. V., New York, N. Y.
Golden's Foundry & Machine Co. Columbus, Ga.
Keney Pulley Co. Toledo, O.
Pipe. (Brass and Copper.) Waterbury Brass Co., New York, N. Y.
Pipe. (Cast Iron.) Dimick Pipe Co., Birmingham, Ala.
General Fire Extinguisher Co. Providence, R. I.
Glamorgan Pipe & Foundry Co. Lynchburg, Va.
U. S. Cast Iron Pipe & Foundry Co. Chattanooga, Tenn.
Wood, R. D., & Co. Philadelphia, Pa.
Pipes. (Copper.) National Pipe Binding Co., New Haven, Conn.
Wolf Co. Fred, W., Chicago, Ill.
Pipe. (Lead.) Robertson Mfg. Co., James, Baltimore, Md.
Pipe. (Riveted.) American Spiral Pipe Works, Chicago, Ill.
Girard Boiler & Mfg. Co. Girard, O.
Keeler, E., Co. Williamsport, Pa.
Petroleum Iron Works Co. Washington, Pa.
Pipe. (Sewer and Culvert.) Georgia Vitrified Brick & Clay Co., Augusta, Ga.
Maryland Lime & Cement Co. Balto., Md.
Pomona Terra Cotta Co. Pomona, N. C.
Stevens Sons Co. H., Macon, Ga.
Talladay Steel Pipe & Tank Co. Waterloo, Ia.
Water Co. Clark, Wilmington, Del.
Pipe. (Sheet Steel.) Dixie Mfg. Co., Baltimore, Md.
Talladay Steel Pipe & Tank Co. Waterloo, Ia.
Pipe. (Spiral Riveted.) American Spiral Pipe Works, Chicago, Ill.
Pipe. (Wrought Iron.) Bourne-Fuller Co., Cleveland, O.
Columbia Supply Co. Columbia, S. C.
General Fire Extinguisher Co. Providence, R. I.
Simmons, John, Co. New York, N. Y.
Pipe Cutting and Threading Mach. Reed Mfg. Co., Erie, Pa.
Saunders' Sons, D. Yonkers, N. Y.
Pipe Fittings. Columbia Supply Co., Columbia, S. C.
General Fire Extinguisher Co. Providence, R. I.
Robertson Mfg. Co. James, Baltimore, Md.
Simmons, John, Co. New York, N. Y.
Wolf Co. Fred W., Chicago, Ill.
Pipe Flanges. (Weldless Steel.) Latrobe Steel Co., Philadelphia, Pa.
Pipe Unions and Joints. Dart Mfg. Co., E. M., Providence, R. I.
Planers. (Metal.) Baird Mfg. Co., Pittsburgh, Pa.
Bailey-Lebby Co. Charleston, S. C.
Price, S. M., Machinery Co. Norfolk, Va.
Savannah Locomotive & Car Works. Savannah, Ga.
Waite, Henry, Co. Norfolk, Va.
Planer Operators. French, Samuel H., & Co., Philadelphia, Pa.
Pistons. (Nickel.) Hanson & Van Winkle Co., Newark, N. J.
Wisconsin Iron & Wire Works. Milwaukee, Wis.
Plumbers' Supplies and Tools. Reed Mfg. Co., Erie, Pa.
Robertson Mfg. Co. James, Baltimore, Md.
Simmons, John, Co. New York, N. Y.
Portable Tools. (For Railway Repair Shops.) Underwood, H. B., & Co., Philadelphia, Pa.
Power Transmitting Machinery. Brown, A. & F., Co., New York, N. Y.
Caldwell, H. W., & Son Co. Chicago, Ill.
Case Mfg. Co. Columbus, O.
Crescent Co. Geo. V., New York, N. Y.
Fairmount Machine Co. Philadelphia, Pa.
Keay Pulley Co. Toledo, O.
Lane Mfg. Co. Montpelier, Vt.
Link-Belt Engineering Co. Philadelphia, Pa.
Northern Electric Mfg. Co. Madison, Wis.
Nordyke & Marmon Co. Indianapolis, Ind.
Presses. (Stamping.) Weller, Chas., & Co., Brooklyn, N. Y.
Niagara Machine Tool Works. Buffalo, N. Y.
Pulleys. (Friction Clutch.) Blakeslee Mfg. Co., Birmingham, Ala.
Brown, A. & F., Co. New York, N. Y.
Crescent Co. Geo. V., New York, N. Y.
Fairmount Machine Co. Philadelphia, Pa.
Smith, S. Morris, Co. New York, Pa.
Williams, M. F., Mfg. Co. St. Louis, Mo.
Wolfe, T. E., Sons. Chambersburg, Pa.
Pulleys. (Pneumatic.) Williams, M. F., Mfg. Co., St. Louis, Mo.
Pulleys. (Wood Split.) Caldwell, H. W., & Son Co., Chicago, Ill.
Caldwell, H. W., Co. Louisville, Ky.
Chase Pulley Co. Providence, R. I.
Federal Mfg. Co. Milwaukee, Wis.
Kenney Pulley Co. Co., Toledo, O.

BALDWIN LOCOMOTIVE WORKS,

Single Expansion and Compound Locomotives.



BROAD and NARROW GAUGE LOCOMOTIVES, Mine and Furnace Locomotives, Compressed Air Locomotives, Tramway Locomotives, Plantation Locomotives, Oil Burning Locomotives.

ELECTRIC LOCOMOTIVES WITH WESTINGHOUSE MOTORS, ELECTRIC CAR TRUCKS WITH OR WITHOUT MOTORS.

All important parts made accurately to gauges and templates, after standard design or to railroad companies' drawings. Like parts of different locomotives of same class, perfectly interchangeable.

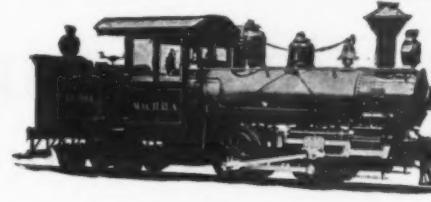
Cable Address: BALDWIN, PHILADELPHIA.

BURNHAM, WILLIAMS & CO., Philadelphia, Pa., U. S. A.

American Locomotive Co.

General Office, 25 Broad St., NEW YORK CITY.

BUILDERS OF

LocomotivesFor all classes
of services.**Mining Locomotives, Logging Locomotives, Compressed Air Locomotives, Contractors' Locomotives,**

Schenectady Works, Schenectady, N. Y.

Brooks Works, Dunkirk, N. Y.

Pittsburg Works, Allegheny, Pa.

Richmond Works, Richmond, Va.

Cooke Works, Paterson, N. J.

Rhode Island Works, Providence, R. I.

Dickson Works, Scranton, Pa.

Manchester Works, Manchester, N. H.

HERCULES STEEL FACE PULLEY

Steel Face
with
Wood
Center,
Strong
and Light

Not Affected
by
any
Changes
in the
Atmosphere

FULLY GUARANTEED IMMEDIATE DELIVERIES

FEDERAL MANUFACTURING COMPANY
SMITH STAMPINGS FACTORY—Milwaukee**Latrobe Steel and Coupler Company,**
CHICAGO AND MUNTON ALL-STEEL AUTOMATIC COUPLERS.Works: Melrose Park, Ill.
Main Office:
Branch Office: 1720 Old Colony Bldg., Chicago.
1200 Girard Bldg., PHILADELPHIA

BRASS FOUNDERS FINISHERS J. J. RYAN & CO.
68-74 West Monroe St., Chicago.

Best Bronze, Babbitt Metals, Brass and Aluminum CASTINGS on Short Notice.

THE AMERICAN FROG & SWITCH CO., Hamilton, O.
FROGS, SWITCHES, SWITCH STANDS, RAIL BRACES.

Westinghouse Standard Engines

5 H. P. to 250 H. P.

Record Run: 13 months and 8 days without a stop,
and then no repairs necessary.

For particulars address nearest office of

Westinghouse, Church, Keir & Co.

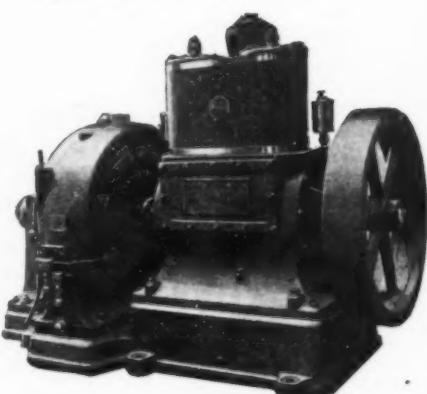
New York Boston Philadelphia—Engineers—Pittsburg Chicago Detroit

who sell the product of

The Westinghouse Machine Co.

Pittsburg—Designers and Builders of—Chicago

Steam Engines, Gas Engines, Steam Turbines, Roney Mechanical Stokers



Westinghouse Standard Engine Generating Set

Westinghouse Motor Driven Air Compressor



Simple and Compact, Dust and Waterproof. Especially adapted to Portable Blowing Outfits and stationary work.

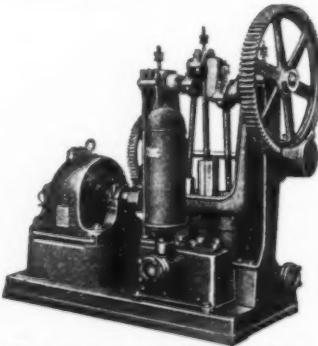
**Westinghouse Traction
Brake Co., 26 Cortlandt St., New York**

Power Brakes for Traction Service.
Combined Magnetic Brake and Electric Car Heater.
Axle and Motor Driven Air Compressors.

Manufactured by The Westinghouse Air Brake Co.

Westinghouse Motors

Alternating and Direct Current



Westinghouse Multipolar Motor Geared to Gould Pump

Efficient



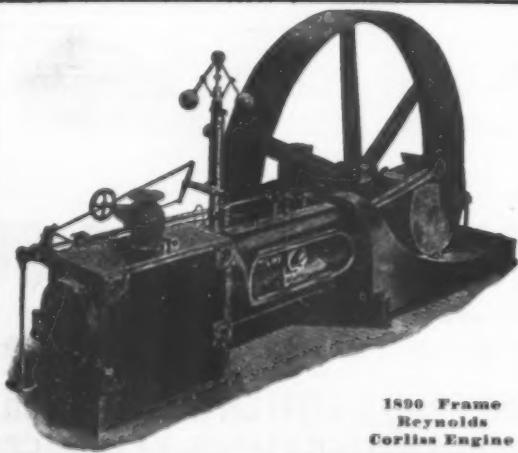
Reliable

Circulars 1042 and 1050 For Particulars

Westinghouse Electric & Mfg. Co.

Sales Offices in All Large Cities

Pittsburg, Pa.



ALLIS-CHALMERS COMPANY,

General Office, CHICAGO, New York Life Bldg.

SOLE BUILDERS OF

Reynolds Corliss Engines

FOR ALL POWER PURPOSES.

ENGINES ESPECIALLY ADAPTED FOR

COTTON MILLS and COTTON OIL MILLS.

1890 Frame
Reynolds
Corliss Engine

BRANCH
OFFICES

{ NEW YORK, Empire Building.
BOSTON, Board of Trade Building.
PITTSBURG, 1212 Frick Building.

NEW ORLEANS, LA., Hennen Building.
CHARLOTTE, N. C., Trust Building.
ATLANTA, GA., Equitable Building.

Classified Index of Articles Advertised

FOR ALPHABETICAL INDEX See Page 30

Simpson, Thos. W., & Co., Philadelphia, Pa.
 Steel Rail Supply Co., The, New York, N. Y.
 Union Rail Co., Pittsburg, Pa.
 Western Supply & Mfg. Co., East St. Louis, Mo.
 Wonham-Major Eng. Works, New York, N. Y.
 Zellicker, W. A., Supply Co., St. Louis, Mo.
Sheets.
 Morse-Twist Drill & Machine Co., New Bedford, Mass.
 Pratt & Whitney Co., Hartford, Conn.
 Polk, A. J., & Son, Millersburg, Pa.
Regulators. (Water and Steam Pressure.)
 Crosby Steam Gage & Valve Co., Boston, Mass.
Repairs. (Engine & Pump.)
 Underwood, H. B., & Co., Philadelphia, Pa.
Riveters. (Pneumatic.)
 Rand Drill Co., New York, N. Y.
Road Machinery.
 Acme Road Machinery Co., Frankfort, N. Y.
 Kelly-Springfield Road Roller Co., Springfield, O.
 Kilbourne & Jacobs Mfg. Co., Columbus, O.
Roofers.
 Austin Mfg. Co., Chicago, Ill.
 Cresson, Geo. V., Co., New York, N. Y.
 Kent Metal Co., New York, N. Y.
 N. J. Foundry & Machine Co., New York, N. Y.
Roofers' and Tinsmiths' Supplies.
 Chattanooga Roof & Fdry. Co., Chattanooga, Tenn.
 Niagara Machine & Tool Works, Buffalo, N. Y.
 Merchant & Co., Inc., Philadelphia, Pa.
 Robinson, J. M. Mfg. Co., Cincinnati, O.
Roofing Tin. (See TIN ROOFING.)
Roofing. (Felt, Tar, Asphalt, Paper, etc.)
 American Roofing Co., Mobile, Ala.
 American Tinplate Co., Pittsburgh, Pa.
 Armitage Mfg. Co., The, Richmond, Va.
 Asphalt Road Roofing Co., New York, N. Y.
 Bassett Mfg. Co., Philadelphia, Pa.
 Buchanan-Vestal Co., Philadelphia, Pa.
 Bird, F. W., & Co., East Walpole, Mass.
 Bird, J. A., & W., & Co., Boston, Mass.
 Carey, Philip, Mfg. Co., Lockland, O.
 Chattanooga Roof & Fdry. Co., Chattanooga, Tenn.
 Eastern Granite Roofing Co., New York, N. Y.
 Garrett, C. H., & Son, Co., Philadelphia, Pa.
 Maryland Lime & Cement Co., Balti, Md.
 Miller Oil & Supply Co., Indianapolis, Ind.
 National Roofing & Supply Co., Louisville, Ky.
 Standard Paint Co., New York, N. Y.
 Stowell Mfg. Co., Jersey City, N. J.
 Warren Chemical & Mfg. Co., New York, N. Y.
 Zellicker, W. A., Supply Co., St. Louis, Mo.
Rollings. (Metal shingles.)
 Chattanooga Roof & Fdry. Co., Chattanooga, Tenn.
 Cortright Metal Roofing Co., Philadelphia, Pa.
 Merchant & Co., Inc., Philadelphia, Pa.
 Montrose Metal Shingle Co., Camden, N. J.
 Penn Metal Ceiling & Roofing Co., Phila., Pa.
Ship Builders. (Iron and Steel.)
 Baltimore Shipbuilding & Dry Dock Co., Balti, Md.
 Newport News Shipbuilding & Dry Dock Co., Newport
 News, Va.
Shutters. (Steel Rolling.)
 Klinear Mfg. Co., Columbus, O.
Skylights.
 Chattanooga Roof & Fdry. Co., Chattanooga, Tenn.
 Bowman-Dorner Mfg. Co., Atlanta, Ga.
 Merchant & Co., Inc., Philadelphia, Pa.
 Van Noordt, H. Co., Boston, Mass.
Slates. (Roofing.)
 Galt, John, & Sons, New York, N. Y.
 Jennings Barn & Slate Co., Easton, Pa.
 McKenna, David, Slatington, Pa.
Smelters' Tools.
 Galt, John, & Sons, New York, N. Y.
Smoke Stacks. (Iron and Steel.)
 Birmingham Boiler Works, Birmingham, Ala.
 Girard Boiler & Mfg. Co., Girard, O.
 Keeler, E. Co., Williamsport, Pa.
 Lombard Iron Works & Supply Co., Augusta, Ga.
 Petroleum Iron Works Co., Washington, Pa.
 Schofield's, J. S., Sons Co., Macon, Ga.
Solder.
 Hierz, Theo., Metal Co., St. Louis, Mo.
 Reed, J. J., & Co., Chicago, Ill.
Springing Tubes.
 Electrical Material Co., Baltimore, Md.
Speleons.
 Hierz, Theo., Metal Co., St. Louis, Mo.
Spikes.
 The Diamond State Steel Co., Wilmington, Del.
Springs. (Bicycle Saddle, Machinery, Railway
 and Spiral.)
 Boston Seiling Co., Boston, Mass.
 Cary Spring Works, New York, N. Y.
 Ludlow-Saylor Wire Co., The, St. Louis, Mo.
Sprinklers. (Automatic.)
 Bailey-Lebby Co., Charleston, S. C.
 General Fire Extinguisher Co., Providence, R. I.
Steam Mills.
 Gainesville Iron Works, Gainesville, Ga.
 Mecklenburg Iron Works, Charlotte, N. C.
Standpipes.
 Birmingham Boiler Works, Birmingham, Ala.
 Girard Boiler & Mfg. Co., Girard, O.
 Hartley Boiler Works, Montgomery, Ala.
 Keeler, E. Co., Williamsport, Pa.
 Lombard Iron Works & Supply Co., Augusta, Ga.
 Means & Fulton Iron Work, Birmingham, Ala.
 Petroleum Iron Works Co., Washington, Pa.
 Virginia Bridge & Iron Co., Roanoke, Va.
Steam Filters Supplies.
 General Fire Extinguisher Co., Providence, R. I.
 McWilliams, Jas., & Co., Louisville, Ky.
 Reed, Mfg. Co., Erie, Pa.
 Simmins, John, Co., New York City.
Steam Engines.
 American Steam Gauge & Valve Mfg. Co., Jamaica
 Plain, Mass.
 Crosby St. Gage & Valve Co., Boston, Mass.
 Lunkenheimer Co., Cincinnati, O.
Steam Heating.
 General Fire Extinguisher Co., Providence, R. I.
 Keeler, E. Co., Williamsport, Pa.
 Peck-Hammond Co., The, Cincinnati, O.
 Tompkins, D. A., Co., Charlotte, N. C.
 Webster & Co., Warren, Camden, N. J.
Steam Shovels. (See Dredges and Excavators.)
Steam Traps.
 American Blower Co., Detroit, Mich.
 Hunt, W. S., Co., Phila., Pa.
 Sturtevant, G. B. F., Boston, Mass.
Steamship Lines.
 Baltimore Steam Packet Co., Baltimore, Md.
 Chesapeake Steamship Co., Baltimore, Md.
 Detroit & Buffalo Steamship Co., Detroit, Mich.
 Merchants & Miners' Trans. Co., Baltimore, Md.
Steel. (Manufacturers of.)
 American Sheet Steel Co., New York, N. Y.
 Bourne-Fuller Co., Cleveland, O.
 Chester Steel Castings Co., Philadelphia, Pa.
 Kennedy, Walter, Pittsburg, Pa.
 The Diamond State Steel Co., Wilmington, Del.
Steel Buildings. (Designers, Builders.)
 Easton Foundry & Machine Co., Easton, Pa.
 Frink & Hazen, Baltimore, Md.
 General Supply & Construction Co., New York, N. Y.
 Scaife, Wm. B., & Sons Co., Pittsburgh, Pa.
 Schreiber, L. & Sons Co., Cincinnati, O.
 Va. Bridge & Iron Co., Roanoke, Va.
Steel Couplers. (Automatic.)
 Latrobe Steel & Coupler Co., Philadelphia, Pa.
Mills. (Turpentine.)
 McMillan Bros. Co., Mobile, Ala.
Stock Certificates, Bonds and Seals.
 Middleton, J. W., Chicago, Ill.
 Myers Printing House, New Orleans, La.
 National Seal Works, Richmond, Va.
Stokers. (Mechanical.)
 Westinghouse, Church, Kerr & Co., Pittsburg, Pa.
 Westinghouse Machine Co., Pittsburg, Pa.
 Western Electric Co., Pittsburg, Pa.
Structural Steel and Iron.
 Belmont Iron Works, Philadelphia, Pa.
 Bourne-Fuller Co., Cleveland, O.
 Chesapeake Iron Works, Baltimore, Md.
 Easton Foundry & Machine Co., Easton, Pa.
 Eureka Supply Co., Chattanooga, Tenn.
 General Supply & Construction Co., New York, N. Y.
 Girard Boiler & Mfg. Co., Girard, O.
 Scaife, Wm. B., & Sons Co., Pittsburgh, Pa.
 Schreiber, L. & Sons Co., The, Cincinnati, O.
 Simmers, Thos. W., & Co., Philadelphia, Pa.
 Virginia Bridge & Iron Co., Roanoke, Va.
 Wisconsin Iron & Wire Works, Milwaukee, Wis.
Switchboards, Switches, etc.
 Electrical Material Co., Baltimore, Md.
 Standard Electric Co., St. Louis, Mo.
 Western Electric Co., Pittsburg, Pa.
Tanks. (Iron and Steel.)
 Birmingham Boiler Works, Birmingham, Ala.
 Caldwell, W. E., Co., Louisville, Ky.
 Flint & Walling Mfg. Co., Kendallville, Ind.
 Girard Boiler & Mfg. Co., Girard, O.
 Hammond Iron Works, Warren, Pa.
 Harry Bros. Co., Dallas, Tex.
 Hartley Boiler Works, Montgomery, Ala.
 Keeler Co., E., Williamsport, Pa.
 Lombard Iron Works & Supply Co., Augusta, Ga.
 Means & Fulton Iron Works, Birmingham, Ala.
 Petromin Iron Works Co., Washington, Pa.
 Scaife, W. B., & Sons Co., Pittsburg, Pa.
 Schofield's, J. S., Sons Co., Macon, Ga.
 Smith Co., H. Morgan, York, Pa.
 Tallerday Steel Pipe & Tank Co., Waterloo, Ia.
Screw Plates.
 Polk, A. J., & Son, Millersburg, Pa.
Screw Saws. (See Woodworking Machinery.)
 Fay, J. A., & Egan, Co., Cincinnati, O.
 Smith, H. B., Machine Co., Smithville, N. J.
Seals. (Stock Certificates, etc.)
 Middleston, J. W., Chicago, Ill.
 National Seal Works, Richmond, Va.



PHOENIX IRON WORKS CO.

MEADVILLE PA.

ENGINES AND BOILERS



Engines.

CORLISS AND SLIDE VALVE ENGINES,
 HOISTING ENGINES,
 AIR COMPRESSORS,
 DREDGE MACHINERY,
 COMPLETE POWER PLANTS A SPECIALTY.

HARDIE-TYNES MFG. CO.

Manufacturers.

BIRMINGHAM, ALA.

Cotton-Mill Owners

will gain power and save
 money by installing

OUR

BOILERS AND ENGINES.

We also make HEATERS and TANKS. Send for Catalogue 13.

THE BROWNELL & CO., DAYTON, OHIO.

THE GREENSBORO SUPPLY CO., Greensboro, N. C., Selling Agents for North and South Carolina and Northern Georgia.



Horizontal and Vertical, Simple and Compound
Engines
of superior quality for electric light and power.
The Ball Engine Co., Erie, Penn.

THE WM. TOD COMPANY
Blowing Reversing Electric
ENGINES
YOUNGSTOWN, OHIO.

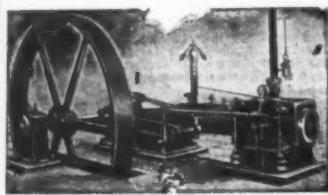
St. Louis Iron & Machine Works,
100 Chouteau St., ST. LOUIS, MO.
BUILDERS OF
St. Louis Corliss Engine
50 to 2000 H. P.
Brick Machinery.

IN SMOKE AND WORTHLESS ASHES goes a lot of your good money when using steam. You can save from 20 to 50 per cent, by installing a gas engine, such as we build. With us there are no experiments; we guarantee as close regulation as any steam engine. We build engines to meet the special requirements demanded, from 2 H. P. for pumping to 2000 H. P. electric lighting engines, and they are as good as possible to make them, and sell them as cheap as high-class material and skill will permit. They are good enough to sell on the strength of merit, rather than price. In buying these engines you do not buy a good cheap engine, but a good engine cheap.
Write for description.
CAPITAL GAS ENGINE CO., Indianapolis, Ind.

ALBANY GREASE
LUBRICATES EVERYTHING
Special Offer:
A sample can of grease and one ALBANY GREASE CUP free of charge or expense for testing.
MADE ONLY BY ADAM COOK'S SONS, 311 West Street, Branch, 31 S. Canal St., Chicago, Ill. New York City, U. S. A.

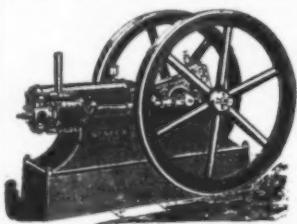
Bates-Corliss
50 to 2000 H. P.
Simple, Cross and Tandem Compounds,
BELTED OR DIRECT CONNECTED,
Heavy Duty Engines,
Best Economy in Fuel and Steam. Close Regulation.
Bates Machine Company, - - - Joliet, Ill.

SOUTHERN ENGINE & BOILER WORKS, JACKSON, TENN.



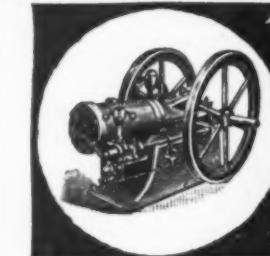
Builders of—

Corliss Engines,
Slide-Valve Engines, Tubular
Boilers and Saw-Mill
Machinery.



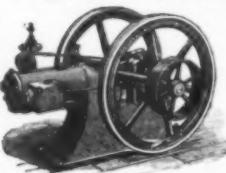
The "SENECA"
4-CYCLE GAS OR GASOLINE ENGINE.
STRONGEST. BEST.
NOTED FOR ITS
ECONOMY, SIMPLICITY AND DURABILITY.
5 TO 50 H.P.

The Fosteria Foundry & Machine Co.
Works at Fosteria, O.
CLEVELAND, O.



THE "BLAKESLEE"
AND GASOLINE ENGINE
STANDS SUPREME
LET US TELL YOU WHY
BLAKESLEE MFG. CO. BIRMINGHAM

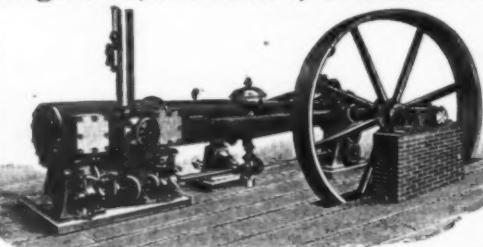
YOU WANT A GAS ENGINE



That is well-made and first-class
in every particular.
THE WATKINS
is IT. Easy to start, simple in operation
and exceptionally well finished.
Catalogue with full particulars sent on request.

THE FRANK M. WATKINS MFG. CO. 843-845 W. Sixth St., Cincinnati, Ohio.

THE I. & E. GREENWALD CO.
Engineers, Founders, Machinists and Millwrights.



Shafting, Hangers, Pulleys,
Sprocket Wheels, Chains, Etc.
Headquarters for Mill Gearing
of all kinds and sizes. Steam
Power Plants Complete.

WRITE FOR CATALOGUE.

720 E. Pearl St. CINCINNATI, O.



REG. TRADE MARKS
THE PHOSPHOR BRONZE SMELTING CO. LIMITED.
2200 WASHINGTON AVE., PHILADELPHIA.
"ELEPHANT BRAND PHOSPHOR-BRONZE"
INGOTS, CASTINGS, WIRE, RODS, SHEETS, ETC.
— DELTA METAL —
CASTINGS, STAMPINGS AND FORGINGS
ORIGINAL AND SOLE MAKERS IN THE U.S.

Trade
Lubri-
fying
Company
Mark
on every
package



Phosphor Bronze
DELTA

Classified Index of Articles Advertised

For ALPHABETICAL INDEX See Page 30

Tempkins, D. A., Co., Charlotte, N. C.
Valk & Murdoch Iron Works, Charleston, S. C.
Virginia Bridge & Iron Co., Roanoke, Va.
Wood, R. D., & Co., Phila., Pa.

Tanks. (Wood.)
Caldwell Co., W. E., Louisville, Ky.
Cypress Lumber Co., Apalachicola, Fla.
Davis, G. M., & Son, Palatka, Fla.
Lewis, H. F., & Co., Ltd., New Orleans, La.
Tupelo Tank Co., Mobile, Ala.

Tapes. (Measuring.)
Lufkin Rule Co., Saginaw, Mich.

Telephones. (Supplies, Equipment.)
Alexander, Jr., Co., S. B., Charlotte, N. C.

Electric Supply Co., Savannah, Ga.

Electrical Material Co., Baltimore, Md.

Piedmont Electric Co., Asheville, N. C.

Standard Electric Co., Newark, N. J.

Western Electrical Supply Co., St. Louis, Mo.

Telephone Poles.
Electric Material Co., Baltimore, Md.

Houston & Liggett, Lewisburg, Tenn.

International Crossing & Const. Co., Galveston, Tex.

Term Plates.
Merchant & Co., Inc., Philadelphia, Pa.

Simpson, Theo. W., & Co., Philadelphia, Pa.

Terra Cotta.
Pomona Terra Cotta Co., Pomona, N. G.

Stevens, H., Sons Co., Macon, Ga.

Textile Machinery. (See Cotton Mill Mach. Threshers.)

Farguhar, A. B., Co., York, Pa.

Cardwell Machine Co., Richmond, Va.

Gibbons, W. H., & Co., Columbia, S. C.

The (Roofing.)

American Tinplate Co., New York, N. Y.

Timers.
American Tinplate Co., New York, N. Y.

Merchant & Co., Inc., Philadelphia, Pa.

Simpson, Thos. W., & Co., Philadelphia, Pa.

Tires, Steel. (Locomotive and Car.)

Lake Steel Co., Philadelphia, Pa.

Tobacco Machinery.
Buckeye Iron & Brass Works, Dayton, O.

Cardwell Machine Co., Richmond, Va.

Tools. (Machine.) [See Machine Tools.]

Tools. (Machinist.)

Barnes, W. F. & John, Co., Rockford, Ill.

Morse Twist Drill & Machine Co., New Bedford, Mass.

Polk, A. J., & Son, Millersburg, Pa.

Pratt & Whitney Co., Hartford, Conn.

Tools. (Pneumatic.)

Band Drill Co., New York, N. Y.

Tools. (Tinners.)

Nicara Machine & Tool Works, Buffalo, N. Y.

Toots. (For Hwy. Rep. Shops.) [See Port. Tools.]

Torches.

Gem Mfg. Co., Pittsburgh, Pa.

Wall, P., Mfg. Co., Allegheny, Pa.

Towers. (Steel and Wood.)

Caldwell Co., W. E., Louisville, Ky.

Flint & Walling Mfg. Co., Kendalville, Ind.

Tomokins, D. A., Co., Charlotte, N. C.

Tramway. (Overhead.)

Cohoes Iron Foundry & Machine Co., Cohoes, N. Y.

Moyer, J. W., & Co., Philadelphia, Pa.

New Jersey Fay & Mcn. Co., New York, N. Y.

Spieldel, J. G., Reading, Pa.

Tramways. (Wire Ropes.)

Broderick & Bascom Rope Co., St. Louis, Mo.

Caldwell, H. W., & Sons Co., Chicago, Ill.

Cresson Co., George, New York, N. Y.

Fisher, S., Mfg. Co., Boston, Pa.

Hunt, Co. C., New York, N. Y.

Jeffrey Mfg. Co., Columbus, O.

Lidgerwood Mfg. Co., New York, N. Y.

Link-Belt Engineering Co., Nicetown (Phila.), Pa.

McLanahan-Stone Machine Co., Hollidaysburg, Pa.

Trenton Iron Co., Trenton, N. J.

Trucks and Drays. (Hand.)

Hornor, W. P., Mfg. Co., Danville, Va.

Tube Cleaners.

Gem Mfg. Co., Pittsburgh, Pa.

Tubing.

Ludlow-Saylor Wire Co., The, St. Louis, Mo.

Tubing. (Seamless, Brass, Copper & Brassed.)

Waterbury Brass Co., New York, N. Y.

Turbines. (See Water Wheels.)

Turbines. (Steam.)

Westinghouse, Church, Kerr & Co., Pittsburgh, Pa.

Westinghouse Machine Co., Pittsburgh, Pa.

Turntables.

Koppel, Arthur, New York City.

Malco, Co., Cincinnati, O.

Virginia Bridge & Iron Co., Roanoke, Va.

Typewriter Table Cabinets.

Dearborn Desk Co., Birmingham, Ala.

Valves.

Amer. Steam Gauge & Valve Mfg. Co., Jam. Plain, Mass.

Boston Belting Co., Boston, Mass.

Columbus Supply Co., Columbus, S. C.

Crosby Steam Gauge & Valve Co., Boston, Mass.

General Pipe & Extinguisher Co., Providence, R. I.

General Pipe & Foundry Co., Lynchburg, Va.

Jenkins Bros., New York, N. Y.

Ludlow Valve Mfg. Co., Troy, N. Y.

Lunkensheimer Co., Cincinnati, O.

Simmons, John, Co., New York City.

Vorhees Rubber Mfg. Co., Jersey City, N. J.

Wolf, Fred, W., & Co., Chicago, Ill.

Wood, R. D., & Co., Philadelphia, Pa.

Veneer Machines.

Coe Mfg. Co., The, Painesville, O.

Titus, E. E., Petersburg, Va.

Ventilators.

Down-Dexter Mfg. Co., Atlanta, Ga.

Merchant & Co., Inc., Philadelphia, Pa.

Vises.

Reed Mfg. Co., Erie, Pa.

Wagon Builders' Mech. & Supplies.

Cordesman, Meyer & Co., Cincinnati, O.

Fay, J. A., & Egan Co., Cincinnati, O.

Warehouses. (Fidelity.)

Baltimore Fidelity Warehouse Co., Baltimore, Md.

Washers. (Ore and Phosphate.)

Bailey-Lebby Co., The, Charleston, S. C.

Cameron & Barkley Co., Charleston, S. C.

McLanahan-Stone Co., Hollidaysburg, Pa.

Watchman's Clocks.
Electrical Material Co., Baltimore, Md.

Imhauser & Co., E., New York City.

Nanz & Co., New York, N. Y.

Waggoner Watchman Clock Co., Grand Rapids, Mich.

Water Power.

Roanoke Navigation & Water Power Co., Weldon, N. C.

Waterproof Cellar Engineer.

Gilbreath, Frank B., Boston, Mass.

Water-Wheel Governor.

Replogle Governor Works, Akron, O.

Water Softening Apparatus. (Purifying.)

Scaife, Wm. B., & Sons Co., Pittsburgh, Pa.

Water-Wheels and Turbines.

Davis Foundry & Machine Works, Rome, Ga.

Lane Mfg. Co., Montpelier, Vt.

Leffel, James, & Co., Springfield, O.

Norristown, Burnham & Co., Inc., Glen Rock, Pa.

Ridson-Alcott Turbine Co., Mount Holly, N. J.

Smith, Co., S., Morgan, York, Pa.

Stilwell, Edward, Smith-Vale Co., Dayton, O.

Westinghouse Church, Kerr & Co., Pittsburgh, Pa.

Westinghouse Mch. Co., Pittsburgh, Pa.

Water Motors.

Pittsburgh Meter Co., E., Pittsburgh, Pa.

Worthington, Henry E., New York, N. Y.

Water-Works Supplies.

Glamorgan Pipe & Foundry Co., Lynchburg, Va.

Pomona Terra Cotta Co., Pomona, N. G.

Stevens, H., Sons Co., Macon, Ga.

U. S. Cast Iron Pipe & Foundry Co., Chicago, Ill.

Wood, R. D., & Co., Philadelphia, Pa.

Weighing Machinery.

Richardson Scale Co., New York, N. Y.

Well Contractors. (Oil, Artesian, etc.)

Anderson, Perry & Bowles, Atlanta, Ga.

Bacon Air Lift Co., New York, N. Y.

Cook Well Co., St. Louis, Mo.

Foy, Isaac H., New York, N. Y.

Ford, Isaac H., New York, N. Y.

Hughes Specialty Well Drilling Co., Charleston, S. C.

Williams Bros., Ithaca, N. Y.

Well Tools and Supplies.

Jackson Mfg. Co., Harrisburg, Pa.

Kilbourne & Jacobs Mfg. Co., Columbus, O.

Whistles. (Chimes, Sirens, etc.)

Amer. Sim. Gauge & Valve Mfg. Co., Jam. Plain, Mass.

Crosby Steam Gauge & Valve Co., Boston, Mass.

Lunkensheimer Co., Cincinnati, O.

White Lead.

French, Samuel H., & Co., Philadelphia, Pa.

Whitewashing Machinery.

Star Brass Works, Chicago, Ill.

Windlasses.

American Ship Windlass Co., Providence, R. I.

Windmills.

Flint & Walling Mfg. Co., Buffalo, N. Y.

Caldwell, H. W., & Sons Co., Chicago, Ill.

Meyers, Fred, J., Mfg. Co., Hamilton, O.

New Jersey Wire Cloth Co., Trenton, N. J.

Wire Goods.

Bolles Iron & Wire Works, J. E., Detroit, Mich.

Buffalo Wire Works Co., Buffalo, N. Y.

Dufur & Co., Baltimore, Md.

Eureka Supply Co., Chattanooga, Tenn.

Ludlow-Saylor Wire Co., The, St. Louis, Mo.

Meyer Mfg. Co., The Fred J., Hamilton, O.

New Jersey Wire Cloth Co., Trenton, N. J.

Wire Netting.

Buffalo Wire Works Co., Buffalo, N. Y.

New Jersey Wire Cloth Co., Trenton, N. J.

Wire Rope.

Broderick & Bascom Rope Co., St. Louis, Mo.

Contractors Plant Mfg. Co., Buffalo, N. Y.

Durable Iron Rope Co., Boston, Mass.

Hill Mfg. Co., Willimantic, Conn.

Lidgerwood Mfg. Co., New York, N. Y.

Roebeling's John A., Sons Co., Trenton, N. J.

Trenton Iron Co., Trenton, N. J.

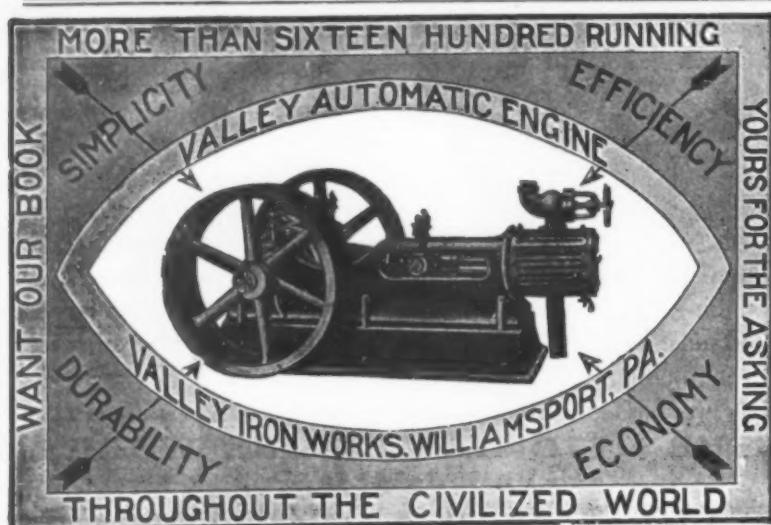
Wire Rope Filler.

Broderick & Bascom Rope Co., St. Louis, Mo.

Ironsides Co., Columbus, O.

Wire Rope Shields.

Ironsides Co., Columbus, O.

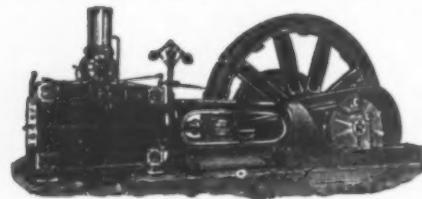


The Ball & Wood Company,
OFFICE: 17 Battery Place, New York. **WORKS:** Elizabeth, N. J.
 Western Office, Room 1247 Marquette Building, Chicago, Ill.
DESIGNERS and BUILDERS of
High-Grade Improved Engines
 For Any Service

Our catalogue describes the Ball & Wood type of four-valve, Simple, Cross and Tandem Compound Engines, Vertical or Horizontal, for Belted or Direct Connected service. It will be sent on application.

For Direct Connection
 TO DYNAMO, OUR
Light Vertical Automatic Engines
 have no superior. We have just brought out a line of direct connected sets which we know will interest you. Let us send you our Catalogue "N" and quote you prices. Both will surprise you.
WM. E. HILL & CO.
 North Park Street, KALAMAZOO, MICH.

THE HOOVEN, OWENS, RENTSCHLER CO., HAMILTON, OHIO.



C. C. Moore & Co., San Francisco, Cal.

S. MILNOR PRICE, Pres.

V. BACIGALUPO, Vice-Pres.

WALTER L. GRAHAM, Secy.

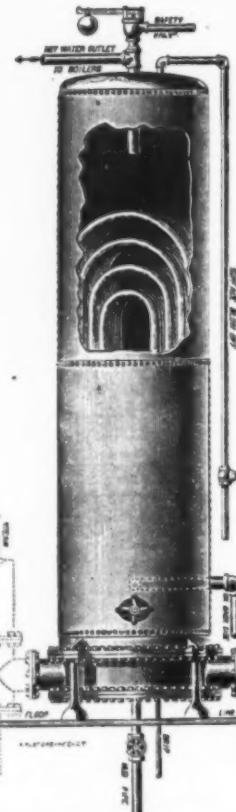
S. M. PRICE MACHINERY CO., Inc.
 NORFOLK, VA.

SELLING AGENTS—

ERIE CITY IRON WORKS, Engines and Boilers.
 AMERICAN TOOL WORKS CO., Lathes, Planers, Shapers, Radial Drills, Boring Mills and Vertical Drills.
 LAIDLAW-DUNN-GORDON CO., Steam Pumps, Air Compressors and Condensers.
 MIDDLETOWN MACHINE CO., Gas and Gasoline Engines.
 DODGE MFG. CO., Wood and Iron Pulleys, Hangers, Shafting, etc.
 LAMBERT HOISTING ENGINE CO., Hoisting and Log Skidding Machinery.
 DETROIT OAK BELTING CO., Pure Oak Lace Belt.
 LUNKENHEIMER CO., High-Grade Steam Specialties.

Harrisburg
 Harrisburg FOUNDRY & MACHINE Works, U. S. A.
Engines

"The BERRYMAN" Feed-Water Heater and Purifier



PROVIDED WITH U-SHAPED TUBES.

It Never Leaks.

"THE HIGHEST GRADE ONLY."

Our Catalogue contains the representative names of a large number of contented buyers of

BERRYMAN HEATERS

built by us in last twenty years.

For prices, catalogue and particulars, apply

THOMAS McADOO,

125 N. 4th St., PHILADELPHIA, PA.

I. B. DAVIS & SONS, Makers,
 Hartford, Conn.

To Owners of BOILERS

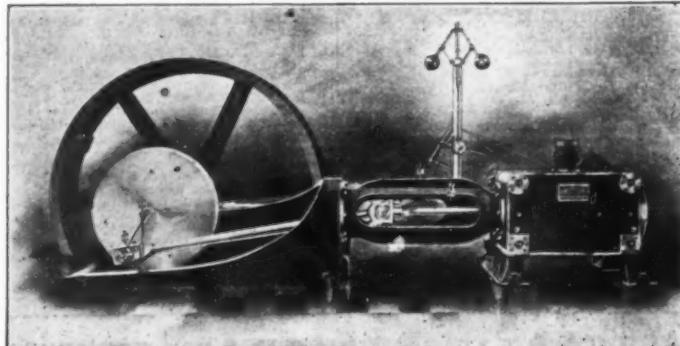
Are you acquainted with

Union Boiler-Tube Cleaner?

POWER—IMPULSE

Gem Mfg. Co.

Spruce St., near 33d, Pittsburg, Pa.



MONARCH CORLISS

Heavy Duty and Girder Frame.
 The latest designs in Mechanical Engineering.

H. N. STRAIT MFG. CO.

Adams Street, Kansas City.

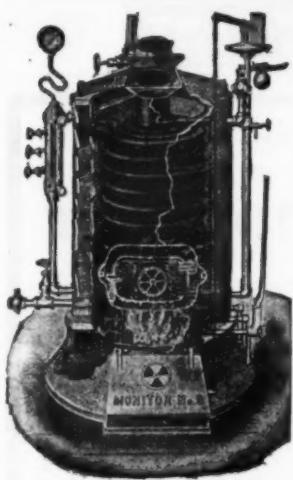
HARTFELDER - GARBUZZ CO.

Mill and Railroad Supplies, Machinery, Engines and Boilers.

301, 303, 305 West Bay St., Cor. Jefferson,

Agents for Revere Rubber Co., Chicago
 Belting Co. and Ohio Valley Pulley Co.

SAVANNAH, GA.



We Make It Warm

for people in all sorts of places from a small dwelling to a great hall. Our steam and hot water boilers give abundant heat with small expenditure of coal and none of trouble.

Monitor Steam Generator Mfg. Co.

OFFICE AND SALESROOM:
Brewers' Exchange Building,
Fayette and Liberty Sts. BALTIMORE, MD.
U. J. BOSSLER, MANAGER.
Home Office and Works, LANDISVILLE, PA.

THE PECK-HAMMOND CO.

Heating, Ventilating and ... Sanitary Engineers.

HOME OFFICE-CINCINNATI.

Operating in the Southern States.

CINCINNATI. MEMPHIS. ANNISTON. HOUSTON. ATLANTA. LYNCHBURG, VA.



Our Garfield Ejector

Is Strikingly Simple,

as can be seen by referring to the longitudinal section here illustrated. Its simplicity, in addition to its efficiency, durability and quality of material and workmanship, has made it a favorite and among steam users.

It is unequalled for raising water from deep wells, mines and pits; for filling or emptying tanks, and for raising and transferring liquids, hot or cold, in tanneries, dye-houses, etc. Send for catalogue and printed matter.

THE OHIO INJECTOR CO.
Wadsworth, Ohio.



THE HENRY WALKER CO. NORFOLK, VA.

Erie City Iron Works Engine and Boilers,

Lodge and Shipley Lathes, Bickford Radial Drills, Cincinnati Shapers, Cincinnati Planers, Cincinnati Machine Tools, Vertical Drills, Cincinnati Milling Machines. Also High-class Wood-Working Machinery, Pumping Machinery, Pneumatic Machinery.

Cheap Heat.

When feed-water gets boiling hot, more steam doesn't make it hotter—but it costs money, when it might be used for other purposes.

Webster Feed-Water Heaters and Purifiers

not being "thoroughfare" heaters, use only enough steam to heat the water. That's why they are so economical.

And that's why a million and a quarter h. p. are in use.

Warren Webster & Co.
Camden, N. J.

Insure Your Steam Boilers

WITH THE

Maryland Casualty Co. OF BALTIMORE.

Inspections made promptly, regularly and thoroughly by experienced men of proved ability. Agents throughout the United States.

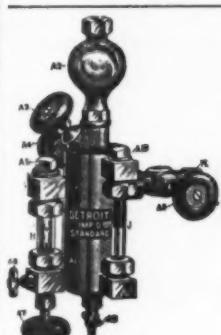
Surplus and Reserve for Policyholders over \$2,250,000.00.

JOHN T. STONE, President.

Birmingham Boiler Works.

Builders of Stand Pipes, Tanks, Stacks and complete Furnace Plants. We also build and put in operation complete plants for the manufacture of oils from pine woods.

W. N. CRELIN, Prop.
Ave. A, Powell Avenue and 24th Street,
BIRMINGHAM, ALA.



THE DETROIT SIGHT FEED LUBRICATORS

possess all the improvements and good features that have been suggested by our own and our customers' experience during the past 20 years.

They are being used by more than nine-tenths of the prominent American engine builders, who are good judges of lubricators. Many of these have used them continuously for more than 15 years.

There are more than 550,000 Detroit Sight Feed Lubricators in use, or more than all other styles combined.

Use the Detroit Lubricators and you will be in good company. Our New Catalogue, showing our full line, will be sent on application.

DETROIT LUBRICATOR CO.,



The National Feed-Water Heaters.

1,000,000 Horse Power in Daily Use.

Save Money

by utilizing exhaust steam for delivering Feed-Water to the boiler at a temperature of 212° F.

Beware of imitations with less heating surface. We manufacture the Original and Only Genuine first-class Coil Feed-Water Heater.

Write for Catalogue.

The National Pipe Bending Co.

97 Lloyd Street, - NEW HAVEN, CONN.

IMPROVED BERRYMAN Water Tube

FEED WATER HEATER AND PURIFIER.
Its PERFECT CIRCULATION of the water gives the highest degree of heat obtainable with the use of exhaust steam. Provided with a SHAPED SEAMLESS DRAWN BRASS TUBES and so constructed that it CANNOT LEAK under the highest boiler pressure it is possible to carry.

Built compactly and designed with special reference to meeting the requirements of modern plants, and give continuous efficient service under the most severe conditions.

BENJ. F. KELLEY & SON, Manufacturers, 31 Liberty St., N. Y. Works, Brooklyn, N. Y.

American Twin Pop Safety Valve

HIGHEST AWARD at Paris Exposition, 1901. The only American Indicator to receive a medal. The gold medal awarded at Pan-American Exposition on Gauges, Pop Valves, Indicators and Engineering Specialties.

For Stationery and Marine.

SIMPLE—ACCURATE—DURABLE.

The Indicators that Made Indicators Famous.

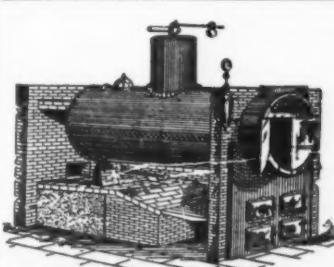
Gauges, Whistles, Clocks, etc. Indicators that Indicate.

EVERY VALVE GUARANTEED.

American Steam Gauge & Valve Mfg. Co.,

NEW YORK. Address Factory, Jamaica Plain, Boston, Mass.

CHICAGO.



Engines, Boilers, Smoke Stacks, Tanks,

Injectors, Inspirators,
Saw Mill Machinery,
Shafting, Pulleys,
Hangers, Etc.

J. S. SCHOFIELD'S SONS CO.,

MACON, GA.

BOILERS

With Rivet Holes Drilled after Plates are Bent and in Position. Tanks and Sheet Iron Works, Engines, Cotton Gins and Presses. Machinery for Fertilizer Works and Phosphate Washers, Asbestos Magnesia Pipe Covering and Magnesia Cement Felt for Boilers, Domes, Steam Piping, etc.

VALK & MURDOCH IRON WORKS, Charleston, S. C.



GLASS OILERS.

DETROIT, MICH.

THE STANDARD UNION COUPLING IS THE DART PATENT
Manufactured by the E. M. Dart Mfg. Co. Providence Rhode Island



DIXIE MANUFACTURING CO.
BALTIMORE, MD.

Exhaust Fans,
Exhaust and Blow Piping,
Cyclone Dust Collectors,
Dust Collectors,
Automatic Furnace Feeders.

Mechanical Experts in
Removal of
Shavings, Dust, Lint and Odors.

Estimates Furnished and All Work
Guaranteed.

Correspondence Solicited.

ARE YOU TROUBLED with dust from your EXHAUST FANS?
THE "Hartford" Patent Improved Dust Separator
will handle shavings, sawdust, lint, seeds, emery dust, cereals, etc.
Leaflet No. 53-H tells all about it.
We also Install Complete Exhaust Systems.
THE HARTFORD BLOWER CORP.
Hartford 110 Suffield St. Conn.

The LUDLOW VALVE MFG. CO.



TROY, N. Y., U. S. A.
Manufacturers of Fire Hydrants and Slide Gate Valves of
All Sizes and for all Pressures and Purposes.

LUDLOW GOODS ARE RELIABLE.
SPECIFY AND INSIST UPON HAVING THEM.
None are Genuine without Our Name, which appears on
every Valve and Hydrant we make and means

STANDARD OF MERIT.
Valves for Extreme High-Pressure Steam, Water, Gas, Oil, Ammonia, etc.,
a Specialty.
SEND FOR CATALOGUE.



The Hayward Excavating Dredging Bucket, "Orange Peel" and "Clam Shell" Buckets.



Dredges, Excavators, Traveling Derricks, Railroad
Excavators, Derrick Fixtures.
APPLIANCES FOR HANDLING COAL AND ALL MATERIALS.
Send for New Illustrated Catalogue.

The Hayward Company,
97 Cedar Street, New York.

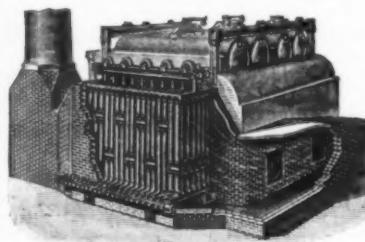
Lidgerwood HOISTING ENGINES
OVER:
21,000
IN USE.
Are STANDARD for Building Purposes,
Pile Driving, Excavating, etc.
CABLEWAYS,
HOISTING and CONVEYING DEVICES, for
Mining, Quarrying, Steam Logging.
SEND FOR CATALOGUES.
Lidgerwood Mfg. Co.
96 LIBERTY ST., NEW YORK.
Chicago, Atlanta, Cleveland, Boston, Philadelphia, New Orleans, Portland, Ore., Pittsburgh.

Specify
LUNKENHEIMER
Mechanical Oil Pumps
"Perfection at last"

THE STANDARD UNION COUPLING IS THE DART PATENT
Manufactured by the E. M. Dart Mfg. Co. Providence Rhode Island

In designing new steam plants, or remodeling old,
the installing of a

Green's Economizer

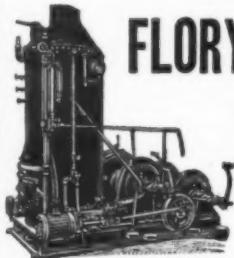


should be one of the first considerations. Saves its cost many times over. Fuel bill alone reduced to 10 to 20 per cent. outside of the saving in boiler repairs; increased capacity of boilers; heating entire plant without additional cost through use of gases otherwise wasted. Our booklet is interesting, even if not ready for installing.

The Green Fuel Economizer Co., Matteawan, N. Y.

SOLE MANUFACTURERS IN THE U. S. A.

FLORY Hoisting Engines



Specially adapted for Contractors, Pile Driving
Quarry and Mine Duty.

Cableways and Conveying Machinery
a specialty.
Stone Mining and Working Machinery—
a complete line.

S. FLORY MFG. CO.,

Bangor, Pa

RAWSON & MORRISON MFG. CO.

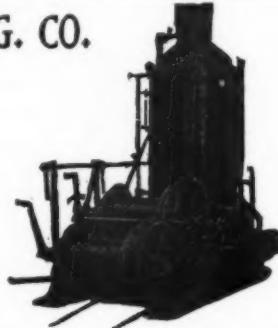
CAMBRIDGEPORT, BOSTON, MASS.

Standard and Eastern

HOISTING ENGINES,
CABLEWAYS and AUTOMATIC COAL
HANDLING MACHINERY.

NEW YORK OFFICE,
No. 11 Broadway.
BALTIMORE,
707 Maryland Trust Bldg.

CHICAGO,
48-50 Lake St.
MONTREAL, CAN.
WRITE FOR CATALOGUE C.



Directed Connected Fan and Engine.

A & J STEEL PLATE FANS

Heating,
Ventilating,
Drying, Etc.

ANDREWS & JOHNSON CO.
Chicago, • • • • Illinois.

RELIANCE

Safety Water Columns

Save
Fuel, Repairs, Stoppages
ECONOMY.
SAFETY.

We urge our patrons to see that the name "Reliance" is cast on all columns. No other person or corporation is authorized to manufacture Reliance Steam Specialties.

The Reliance Gauge Column Co.
SOLE MFRS.
CLEVELAND, O.

79 E. Prospect St.

Contractor's Plant Mfg. Co., Ltd.

MANUFACTURERS OF
STEAM, HORSE and HAND POWER

Hoisting Machines

DERRICK IRON and CONTRACTORS' SUPPLIES.
MANUFACTURERS OF WIRE ROPE.

129 Erie Street, Buffalo, N. Y.

Mention this Journal.

Self-Supporting Steel Stacks.

Stand Pipes, Tanks,
HIGH-GRADE

FIRE TUBE and
WATER TUBE
BOILERS.

Riveted Steel Pipe.

E. Keeler Co.

Established 1865.
WILLIAMSPORT, PA.
NEW YORK.
PHILADELPHIA.
CHICAGO.

Send for Catalog R.

McCLAVE'S These appliances combine valuable features for burning the smaller sizes of hard and soft coal, such as Anthracite Culm, Birdseye, Buckwheat and Bituminous Slack, while the Grate alone stands unequalled for burning the larger sizes of these fuels with natural draught. The Argand Blower gives EXCELLENT RESULTS in burning Spent Tan, Sawdust, Bagasse, etc. For full particulars send for Illustrated Descriptive Catalogue C.

McCLAVE-BROOKS CO., Scranton, Pa.

ALABAMA CONSOLIDATED COAL & IRON CO.
BIRMINGHAM, ALA.

Manufacturers of the Celebrated Brands of
FOUNDRY IRON:

"Clifton" and "Etowah"

Also Miners and Shippers of HIGH-GRADE STEAM COAL, and Makers of the Well Known **"STANDARD"** FOUNDRY COKE.

Selling Agents for the North and West: { CINCINNATI, CHICAGO, ST. LOUIS.
MATTHEW ADDY & CO. PITTSBURGH, PHILADELPHIA,
MOBILE COAL CO., Agents for Coal and Coke in the Mobile Territory. NEW YORK.

W. K. NIVER COAL CO.

Miners and Shippers of the Celebrated

Pen Mar Big Vein Cumberland and Paint Creek Hanawha Splint, Steam and Gas COALS.

Unexcelled for Steam and Smelting Purposes,

General Offices, Continental Trust Bldg., Baltimore, Md.

BRANCH OFFICES:

625 Marquette Bldg., CHICAGO.
101 Milk St., Boston, Mass. 1021 Union Trust Bldg., CINCINNATI, O.
200 E. Genesee St., Syracuse, N. Y. Altoona, Pa.

Shipping Wharves: BALTIMORE, NEWPORT NEWS, PHILADELPHIA AND STATEN ISLAND.

Burroughs & Kramer, Durham, N. C.

Selling Agents for North and South Carolina.



Brushy Mountain Steam Coal.
Standard Steamer.

CROOKED FORK COAL & COKE CO.

General Office, - Petros, Tenn.

Rear King Bolt Brewster Gear Set No. 8 A.

INTEGRAL HEAD BLOCK PLATE.



The finest Rear King Bolt Gear Set ever produced. The strongest of selling points for your line of vehicles. Furnished all wrought or with malleable parts. All made to fit regular gear woods. No special woods required. Guaranteed not to rattle.

Write for prices and ask for Catalogue F.

THE D. WILCOX MANUFACTURING CO. - - - Mechanicsburg, Pa.
Manufacturers of Carriage Hardware and Special Forgings.

In manufacturing these barrows, the hard usage to which they are put, is kept prominently before us.

FOUNDRY BARROWS



Substantially Braced.

Metal Barrows of all sizes and for all purposes.

Mining Cars, Coal or Coke Wagons.

Ask for Catalogue,

Jackson Mfg. Co. Harrisburg, Pa.

INCORPORATED 1884

KENSEE
STANDS FOR ALL THAT IS BEST IN BLUE-GEM AND JELlico COALS.
ADDRESS MAIN JELlico MT. COAL CO. KENSEE, KY.
(TELEGRAPH JELlico, TENN.)

Jewett, Bigelow & Brooks,

MINERS AND SHIPPERS OF

Iroquois Splint
and Thin Vein
Pocahontas Coal

The Two Most Powerful Steam Coals Produced.

MAIN OFFICE, DETROIT, MICH.

Southern Office, Marytown, W. Va.

Eastern Office, Roanoke, Va.

DAVIS COAL AND COKE CO.

MINERS AND SHIPPERS

DAVIS LOCOMOTIVE, STEAM AND SMITHING COALS

Sole Agent for Elk Garden **Big Vein Cumberland Coal.**

DAVIS COKE FOR ORE SMELTERS, FOUNDRIES, AND FAMILY USE.

Shipments to all points accessible to rail or water.

BALTIMORE. PHILADELPHIA. NEW YORK. BOSTON.

Pocahontas Coal

SMOKELESS, SEMI-BITUMINOUS.

Is the Standard Steam Fuel for the World.

CASTNER, CURRAN & BULLITT, Sole Agents, PHILADELPHIA.

BRANCH OFFICES:
1 Broadway, New York. 70 Kilby Street, Boston, Mass. Citizens Bank Bldg., Norfolk, Va.
Neave Building, Cincinnati, O. Terry Building, Roanoke, Va. Old Colony Building, Chicago, Ill.
4 Fenchurch Avenue, London, England.

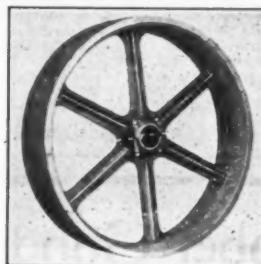
THE AMERICAN

**All-Wrought Steel Split Pulley.**

A HANDSOME DESIGN.
SUBSTANTIAL CONSTRUCTION.
A PERFECT PULLEY.

SEND FOR CATALOG.

THE AMERICAN PULLEY CO.
29th and Bristol Streets,
PHILADELPHIA, PA.

**A HAPPY
COMBINATION**

of the best features of the
all steel and all wood pul-
leys make the new

**Steel Center Wood Rim
Pulley.**

Send for Prices.

Oneida Steel Pulley Co.
ONEIDA, N. Y.

**VANDUZEN Oiler**

FOR LOOSE PULLEYS lubricates the shaft when the pulley begins to run; also when it begins to stop, and does not need oil while the pulley is running at full speed. Sample by mail free. THE E. W. VANDUZEN CO., 428-434 E. 2d St., Cincinnati, O.

Corrugated Galvanized Steel

TANKS

FOR FUEL OIL, PETROLEUM OIL WELLS,
FACTORIES, ETC.

Also CISTERNS for under or overground use.
Our work guaranteed. Write

HARRY BROS. CO., 240 Pacific Ave., DALLAS, TEX.
231 Fannin St., BEAUMONT, TEX.

CYPRESS WATER TANKS.

Best in the world. Send for catalogue.
Write for delivered prices.

H. F. LEWIS & CO., Ltd.
116 Barronne St., NEW ORLEANS, LA.

TUPELO WATER TANKS

Equal to cypress and 10% cheaper.
For delivered prices write

Tupelo Tank Co., 27 Madison Street,
Mobile, Ala.

**GILBERT
WOOD
SPLIT
PULLEYS****SAGINAW MANUFACTURING CO.**

Saginaw, Michigan, U. S. A.

New York Branch, 44 Dey Street.
Chicago Branch, 35 S. Canal Street.
Sales Agencies in all the Principal Cities.
Cable Address: ENGRAVE, A. B. & Lieber's Codes.

Cast Iron Whole Pulleys

Machine Moulded
Bored, Turned and Balanced.



We can furnish from stock pulleys from 6 to 120 inches in diameter, and can make larger sizes at short notice. We can also furnish pulleys covered with rubber belting or leather at lowest prices. Pulleys are furnished with straight or crowning faces as desired. Send for 100-page illustrated catalogue and discount sheet.

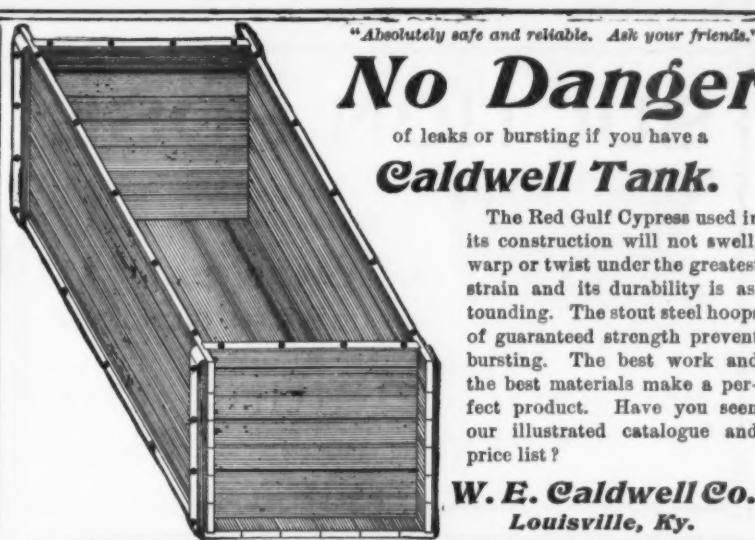
W. E. CALDWELL CO.
Louisville, Ky.

T. B. WOOD'S SONS,
Manufacturers of
*Shafting, Pulleys, Hangers,
Rope Sheaves, etc.*

CHAMBERSBURG, PA.

**OUR TANKS
ARE ALWAYS
~ON TOP~
HONESTLY MADE
WRITE FOR PRICES**

THE CYPRESS LUMBER CO.
APALACHICOLA, FLA.

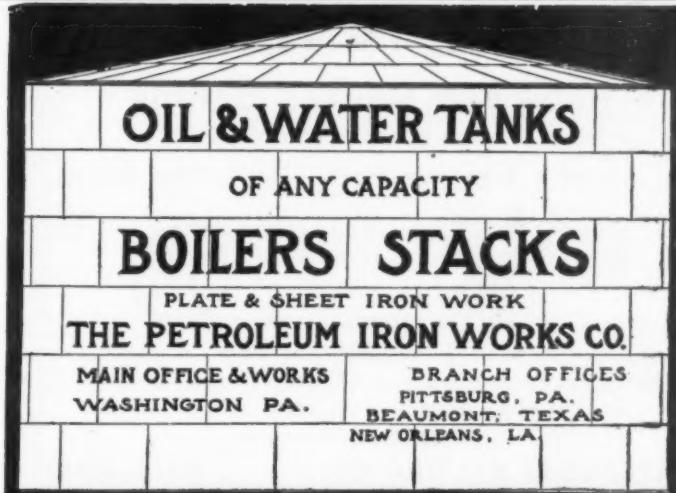


"Absolutely safe and reliable. Ask your friends."

No Danger
of leaks or bursting if you have a
Caldwell Tank.

The Red Gulf Cypress used in its construction will not swell, warp or twist under the greatest strain and its durability is astounding. The stout steel hoops of guaranteed strength prevent bursting. The best work and the best materials make a perfect product. Have you seen our illustrated catalogue and price list?

W. E. CALDWELL CO.
Louisville, Ky.

**THE SOUTHERN PIPE COVERING CO.**

JOHN A. SELPH, Prop.

Successors to THE SOUTHERN ASBESTOS MFG. CO., RICHMOND, VA.
Manufacturers of Standard Asbestos-Magnesia Steam Pipe and Boiler Covering
and Cements. The only manufacturers of these materials in the South.

THE BELT CONTACT.

Wood makes a better
surface than iron for
belts.

The rim of the Chase
Pulley is wood, and
the arms are iron.
Together they make
the strongest combi-
nation.

Chase Pulley Co., Providence, R. I.

GOLDEN'S FOUNDRY & MACHINE CO.
COLUMBUS, GEORGIA.

Manufacturers of

Hangers, Shafting, Machine Moulded Pulleys.

Send for Price List and Discount Sheet.

Couplings, Pillow Blocks, Floor Stands, Collars, Etc.

"SOLVAY" CHLORIDE OF CALCIUM
SOLID AND FLUID.

The Best Dryer for Air in Cold Storage Houses.
Makes the Strongest Ice Machine Brine for the Least Money.

Send for Calcium Circular and Prices.

CARBONDALE CHEMICAL CO.

New York Office, 141 Broadway.
Boston Office, 544 Tremont Bldg.

Carbondale, Pa.

Pittsburg, 727 Park Building.
Chicago, 61 Portland Bldg.

Specify
LUNKENHEIMER
"Victor" Gate Valve
An up-to-date high pressure valve

SUCTION HOSE



For Mining and Marine Work,
Fire Departments, Oil, etc.

**MECHANICAL
RUBBER GOODS.**

SMOOTH BORE. Also regular, with wire exposed inside.

MANUFACTURED BY

Boston Belting Co.

JAMES BENNETT FORSYTH, Mfg. Agt. and Gen. Mgr.

BOSTON. NEW YORK. PHILADELPHIA. BALTIMORE. ATLANTA.

COTTON-BLOOM

Sewed Canvas Belting

FOR IN OR OUTDOOR USE!

Equals Leather Belt Half The Price.



Made by an entirely New and Original Process. Will not stretch any more than leather and is equally as strong and durable; a trial will convince you.

SAMPLES AND SPECIAL DISCOUNTS ON APPLICATION.

ENDLESS BELTS A Specialty.

WHITEHURST BELTING CO., BALTIMORE, MD.

THE BEST FLANGE PACKING MADE.



Rainbow Packing.

THE COLOR OF RAINBOW PACKING IS RED.

Three rows of Diamonds in Black throughout the length of each and every roll. No baking or following up.

Thousands of Imitators. No Equal.

Will Hold Highest Pressure.

Don't have to use wire and cloth to hold RAINBOW.

Can't Blow It Out.

Manufactured, Patented and Copyrighted Exclusively by

The Peerless Rubber Mfg. Co.
16 Warren Street, NEW YORK.

16-24 Woodward Ave., Detroit, Mich. Corner Common and Tachoupitoulas Sts., New Orleans, La.
210-214 N. Third St., St. Louis, Mo. 17-23 Beale St. and 18-24 Main St., San Francisco, Cal. 122-123 Union Ave., Kansas City, Mo. 709-711 Austin Ave., Waco, Tex. Cor. Ninth and Carey Sts., Richmond, Va. 1218 Farm St., Omaha, Neb. 202-210 S. Water St., Chicago, Ill. 634 Smithfield St., Pittsburgh, Pa. 1601 to 1615 17th St., Denver, Col. 220 S. Fifth St., Philadelphia, Pa. 20th St. and Railroad Ave., Birmingham, Ala. 38 S. Meridian St., Indianapolis, Ind.



Voorhees Rubber Mfg. Co.
JERSEY CITY, N. J.

Rubber Belting, Hose,

Packings, Valves, Mats, Mattings, Etc.

Rubber Lined Cotton Mill and Fire Hose.

We manufacture only the highest grades.

"Goods Bearing Our Brands Are Always
Guaranteed."

**Alexander
Brothers Oak Leather
Belting**

Manufacturers of
410 and 412 N. Third Street
Philadelphia

DID YOU EVER TRY

MEIER'S BELTING?

How do you know it is not
THE BEST?

Made of Oak-Tan Leather.

TRY IT.

JOSEPH MEIER'S SONS,

Factory: Newark, N. J. 49 Day Street, N. Y.

ESTABLISHED 1883.

**STITCHED COTTON
BELTING**

"SPHINX" BRAND.

Rossendale-Reddaway Belting & Hose Co.
NEWARK, N. J.



Subscribe to the Manufacturers' Record.
Price \$4 a year, or six months for \$2.

**The "Original Gandy"
STITCHED
COTTON DUCK
BELTING.**



For Strength,
Traction

Power
and
Durability

It is without an equal.

Specially adapted to places where belts are exposed to water, heat, steam, oils, atmospheric changes, etc. Costs about one-half as much as the best leather belt on the market—has greater lasting qualities and will outwear any other make of belt. It is used with the greatest satisfaction as a main driver, conveyor or carrier. Give the Gandy Belt a trial and be convinced of its high merit. Beware of imitations. The real article stamped every ten feet,

"Original Gandy Belt."

Sole Manufacturers,

THE GANDY BELTING CO., Baltimore, Md.

"OUR NAME AND BRAND A GUARANTEE OF QUALITY."
High Grade Rubber Goods,



Belting, Packing,
Tubing, Springs, Valves,
Gaskets,
Mats, and Flatting.
Rubber Lined
Linen and Cotton Hose.

Send for Catalogue, Samples and Prices.
MAIN OFFICE AND WORKS,
JERSEY CITY, N. J.

N. J. CAR SPRING and RUBBER CO.

AGENTS:—Lee Bros., Memphis, Tenn.; Nashville Machine Works, Nashville, Tenn.; Moore & Handley Hardware Co., Birmingham, Ala.; Southern Brass & Iron Co., Knoxville, Tenn.; Stratton & Bragg Co., Petersburg, Va.; Southern Supply Co., Norfolk, Va.; N. S. Fulford Hardware Co., Washington, N. C.; Lombard Iron Works & Supply Co., Augusta, Ga.; John G. Christopher, Jacksonville, Fla.; Peden Iron & Steel Co., Houston, Tex.; F. F. Collins Mfg. Co., San Antonio, Tex.; Young & Heintz, Dallas, Tex.; Richard Mellett, Mobile, Ala.; C. A. Turner, Pittsburgh, Pa.; Miller Supply Co., Huntington, W. Va.; Carolina Supply Co., Greenville, S. C.; F. W. Axtell, Ft. Worth, Tex.; Little Rock Tent & Awning Co., Little Rock, Ark.; Hyman Supply Co., New Berne, N. C.

Driving, Conveying, Elevating
EACH LEVIATHAN BELT
IS MADE ON HONOR, AND STANDS FOR
Greatest Power, Durability, Economy
Wherever Run—Wet or Dry.

MAIN BELTING COMPANY,

1219-1241 Carpenter Street, Philadelphia.

BOSTON

NEW YORK

55-57 Market Street, Chicago.

BUFFALO

Eureka Fire Hose Co.



GOLD MEDAL
Awarded at
Pan American Exposition
1901.

13 Barclay St.
NEW YORK.

ORIGINAL MANUFACTURERS OF

**SEAMLESS RUBBER LINED
COTTON FIRE HOSE.**

Also the Celebrated Brands of Eureka Mill Hose, Eureka Underwriters' Linen, Eureka Garden Hose, Eureka U. S. Brand Linen Hose, Plain and Rubber Linen, Trojan Mill Hose, Gen. Garden Hose.

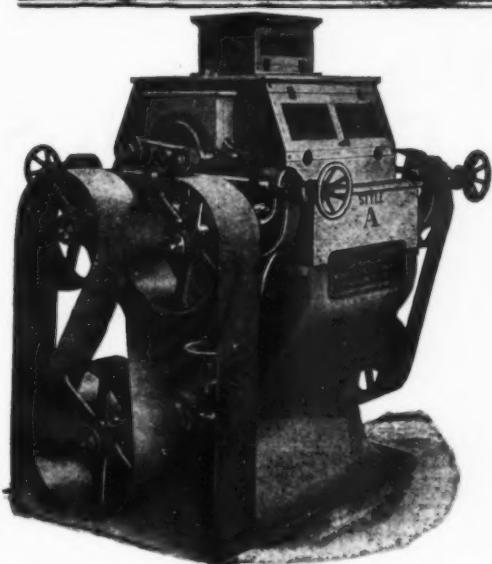
Agencies at Charlotte, Greensboro, N. C., Atlanta, Ga., Memphis, Tenn., and New Orleans, La.

Union Bond Steel Wall Ties



All Kinds—Galvanized
FOR
Face Brick, Veneering, Terra
Cotta, Hollow Walls, etc.

UNION BRICK BOND COMPANY, Exclusive Mfrs., PITTSBURG, PA.



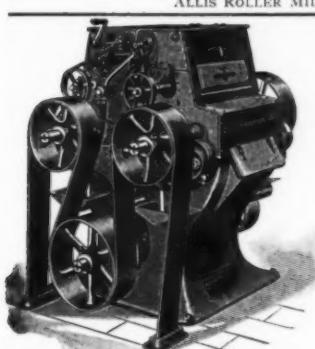
ALLIS ROLLER MILL.

ALLIS-CHALMERS Co.General Office **CHICAGO**, New York Life Bldg.

BUILDERS OF

**Flour Mills, Corn
and Cereal Mills.****Universal Bolters—Reliance Purifiers
Reliance Sifters—Allis Roller Mills**

WRITE FOR DESCRIPTIVE CATALOGUE AND PRICES.

**FLOUR MILL MACHINERY.**

The kind that stands high in the estimation of millers everywhere. Its 51 years record is a good one. We build complete Flour, Corn and Cereal Mills of any desired capacity. We make Mill and Elevator Machinery and Supplies of all kinds, Portable Buhr Stone Mills, Roller, Corn and Feed Mills. Bolting Cloths made up to order.

HIGH-GRADE SHAFTING, POWER CONNECTIONS, GEARING and PRACTICAL ROPE DRIVES a Specialty.

CORRESPONDENCE SOLICITED.

NORDYKE & MARMON CO., INDIANAPOLIS, IND., U.S.A.

MONARCH ATTRITION GRINDING MILL.

Specially Adapted to
Grinding
LINSEED and COTTON
SEED CAKE.

Shipped Subject
to
15 Days' Trial.



Not necessary to remove belts to open mill. Contains Quick Release, Movable Base, Chain Oiler, Phosphor Bronze Bearings, Perfect Feed and our Patent Ball Bearing at end of Spindles.

GUARANTEED to do as much work, both as to **Quantity and Quality**, as any mill built, and the manner in which it is constructed makes it the **BEST MILL** offered to the trade. Write for prices.

SPROUT, WALDRON & CO.,
Builders of Flour, Meal and Feed Mills. P. O. Box 310. MUNCY, PENNA.

CHAIN

Common Proof Coil. Close and Stud Link. Switch, Check and Safety.
"BB," "BBB" and Dredge. Brake and Special.

EMPIRE CHAIN COMPANY,
2929-2939 Smallman St., PITTSBURG, PA.
MANUFACTURERS.

WALL'S OILERS AND TORCHES MADE OF STEEL.

Send for Booklet.

P. WALL MFG. SUPPLY CO., ALLEGHENY, PA.

Power Transmitting, Elevating,
Conveying and Special Machinery,

—ALSO—

Flour, Corn, Rye, Buckwheat and
Rice Machinery, Turbine Water
Wheels and Mill Supplies of every
description.

THE WOLF CO.

Export and Atlantic Coast Department,

No. 804 Penn'a Bldg. PHILADELPHIA, PA.

Main Office and Works, Chambersburg, Pa.

BURR STONESFor all purposes.
Manufactured by us.Also ROLLER MILLS, SMUT MACHINES and
GENERAL MILL MACHINERY.

Established 1847.

B. F. STARR & CO., Baltimore, Md.

**Wire and Springs**

OF EVERY DESCRIPTION.

CARY SPRING WORKS,

240 & 242 W. 29th St. NEW YORK, N.Y.

CAREY'S MAGNEZIA STEAM PIPE AND BOILER COVERINGS

Are the Most Efficient, Durable and Economical.

The Philip Carey Manufacturing Co., { General Offices—
LOCKLAND, OHIO.

FACTORIES—Lockland, O., Baldwinsville, Mass., Plymouth Mtg., Pa.

BRANCHES—New York, Philadelphia, Boston, Pittsburg, Cleveland, Cincinnati, Charlotte, Atlanta.

See our Roofing Advertisement on Page 44.

American Sheet Steel Company

Battery Park Building New York

Manufacturers of all varieties of

Iron and Steel Sheets

Black and Galvanized, Plain and Painted
Flat, Corrugated and "V" Crimped

Apollo Best Bloom Galvanized Sheets
Wellsville Polished Steel Sheets

W. Dewees Wood Company's Planished Iron
W. Dewees Wood Company's Refined Iron

GALENA-SIGNAL OIL CO. FRANKLIN, PA.

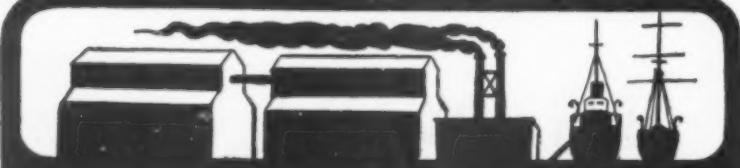
Successors to Galena Oil Company and
Signal Oil Company, sole manufacturers of
the celebrated Galena Coach, Engine and Car Oils
and Sibley's Perfection Valve and Signal Oils.

Charles Miller,
President

Rubber Stamps, Seals,
Stock Certificates and Bonds,
Manufactured by

NATIONAL SEAL WORKS
P. O. Box 60, RICHMOND, VA.

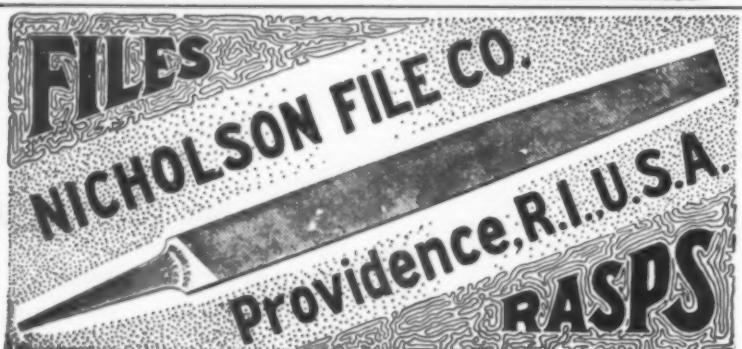
STOCK CERTIFICATES
FOR CORPORATIONS.
60 DESIGNS. REQUEST OUR SAMPLES.
MYERS' PRINTING HOUSE, NEW ORLEANS.



ELEVATORS and SHIPS

in fact, all metallic surfaces, for their proper protection
need a paint that is tough and durable; that resists
heat, cold, moisture, fumes; that retains its color.

Use Superior Graphite Paint.
Detroit Graphite Mfg. Co., Detroit.



THE PITTSBURGH REDUCTION CO. PITTSBURGH, PA.

ALUMINUM

Electric Conductors, Ingots, Bars, Plates,
Castings, Tubes, Sheets, Etc.
Southern Office, Bond Bldg., WASHINGTON, D. C.

COLUMBIA SUPPLY CO. COLUMBIA, S. C.

DEALERS IN—

Machinery Supplies.
Everything for Saw Mills.
Rubber, Leather and Gandy Belt.
Pipe, Valves and Fittings.
Estimates Given on Specifications.



Black Diamond Prepared Roofing

In Two and Three Ply.

We make nine-tenths of all the Prepared Roofing
sold in the United States. A better testimonial?

BARRETT MFG. CO.,

St. Louis, Mo. New Orleans, La.

Philadelphia, Pa.



THE INGERSOLL- SERGEANT DRILL CO.

26 Cortlandt St., N. Y.

The Pohle Air Lift System.

Water Raised by Com-
pressed Air.

AIR COMPRESSORS.



MANUFACTURERS' RECORD.

A WEEKLY SOUTHERN INDUSTRIAL, RAILROAD AND FINANCIAL NEWSPAPER.

VOL. XLIV. No. 8.

WEEKLY.

Manufacturers' Record.

PUBLISHED EVERY THURSDAY BY THE
Manufacturers' Record Publishing Co.

RICHARD H. EDMONDS, President.
THOMAS P. GRASTY, Vice-President.
FRANK GOULD, Secretary-Treasurer.

OFFICE: MANUFACTURERS' RECORD BUILDING,
BALTIMORE.

RICHARD H. EDMONDS,
Editor and General Manager.

THOMAS P. GRASTY,
General Staff Correspondent.

SUBSCRIPTION, * * * \$4.00 a Year.
TO FOREIGN COUNTRIES, * 26s. 6d. a Year.

BALTIMORE, SEPTEMBER 10, 1903.

COPY FOR ADVERTISEMENTS.

**Advertising copy (changes or new
advertisements) should reach us
Saturday Morning to insure insertion
in the issue of the following week.**

**For the first issue in the month
we should receive copy by Friday
Morning of the week preceding.**

THE DAILY BULLETIN of the Manufacturers' Record is published every business day in the year for the purpose of aiding manufacturers and business men generally who need to keep in daily touch with the new industrial, railroad and financial developments of the South and Southwest. Supplementing and in connection with the work of the Manufacturers' Record, it is an invaluable aid to all who are seeking business in the South and Southwest, the most wonderfully endowed section of America, where industrial, railroad and financial activity is creating an ever-widening market for machinery of all kinds, railroad equipment and building supplies, and for financial operations, etc., and where the knowledge and skill of the engineer and expert will find their largest field of operation.

The Daily Bulletin is intended simply to cover every day the work of the "Construction Department" of the Manufacturers' Record in reporting every new mining, manufacturing, railroad and financial enterprise organized in the South and Southwest, and it is not intended to be a general daily newspaper. To all who want to be advised every day of every new enterprise organized in that section it is invaluable.

THE BURDEN OF VAGRANCY.

Thoughtful men in other Southern States are watching with interest the efforts which Georgia is making to enforce its recently-enacted stringent law against vagrancy. It is a law which appeals to every State between the Potomac and the Rio Grande—a law which should be duplicated in other States if the full benefits of the Georgia legislation are to be enjoyed by the South. A bill providing for such a law has already been introduced in the legislature of Alabama, and the press of that and other States have only to maintain the agitation of the subject which they have strenuously begun to ensure uniformity of action throughout the South. If Georgia remain alone in its position, the curse will only be removed to nearby

States. Citizens of those States, however, will readily impress upon their lawmakers the necessity for prompt action when they perceive the success of the Georgian plan in Georgia and when they come to fully comprehend what vagrancy means to the community. It is not only the fruitful mother of vice and crime, taxing unnecessarily the police resources of the State, but it is a drain in every direction upon thrift and respectability. Vagrants are supported in some way, frequently through mistaken charity, frequently through theft. In either event the shiftless loafers are a drain upon pockets and the endurance of the workers, rendering more difficult the accomplishment of productive tasks and increasing the burden of taxation.

To become most effective, however, the vagrancy law must be supplemented by a law providing for adequate police protection in country districts. Already the drift of vagrants from Georgia cities is noted, and it is not at all unlikely that complaints about them in the country districts will increase unless vagrancy there be suppressed. The remedy seems to lie in the organization of a police patrol somewhat upon the lines of the old patrol before the war, but modified, of course, to meet changed conditions. Such a system would have a deterrent effect of greater value, perhaps, than as a means of bringing criminals to justice. It would reduce the number of potential criminals. The legislative program for Southern States should be a strict vagrancy law, a rural police patrol, and provisions for putting to work and keeping at work, under State authority and for the State, the irremovable vagrant, together with a provision that committal to the penitentiary shall justify a surgical operation removing forever the possibility of the propagation of recognized convict stock.

WORKING FOR THE SOUTH.

An innovation which ought to have practical and beneficent effects in the movement for immigration to the South was made last week when the Southeastern Railways Land and Industrial Agents' Association held a special meeting at Buffalo, N. Y. Among the members of this association are Messrs. M. V. Richards, president of the organization, land and industrial agent of the Southern Railway; J. E. Ingraham, vice-president, Florida East Coast Railway; F. Y. Anderson, land commissioner, Alabama Great Southern Railroad; R. L. Pritchard, land and industrial agent Central of Georgia Railway; S. A. Hughes, general immigration agent 'Frisco system; W. L. Glessner, commissioner of immigration, Georgia Southern & Florida Railway; George C. Power, industrial commissioner Illinois Central Railroad; J. F. Merry, assistant general passenger agent Illinois Central Railroad; G. A. Park, general immigration and industrial agent Louisville & Nashville Railroad; Robert Gates, industrial agent for Tennessee of the

Louisville & Nashville Railroad; H. F. Smith, traffic manager Nashville, Chattanooga & St. Louis Railway; Paul Scherer, immigration agent Norfolk & Western Railroad; J. W. White, general industrial agent Seaboard Air Line Railway; M. Schulter, industrial commissioner 'Frisco system; Frank B. West, land and industrial agent Macon, Dublin & Savannah Railway; Wilbur McCoy, industrial and agricultural agent Atlantic Coast Line Railroad; W. S. Erwin, general manager Tallulah Falls Railway; C. E. Harman, general passenger agent Western & Atlantic Railway; W. L. Henderson, land and industrial agent Mobile & Ohio Railroad, and C. C. McMillin, general agent passenger department Georgia Railroad.

This association represents the machinery employed by railroads of the South to make known its great resources and to induce men and capital to join in developing them. While much of the time of the meeting, which is only one of those to be held in the North, was occupied in a discussion of papers bearing upon different phases of agriculture and industry in the country south of the Potomac and Ohio and east of the Mississippi, the chief aim of the meeting was to enlarge in the East and Middle West and in Canada the lines upon which the association is working. The portions of the South served by the railroads represented by it have been receiving considerable immigration from the Northwest, but in other parts of the country comparatively little work, for enlarging the movement has been done, and it is hoped that the Buffalo meeting is but the beginning of a strong effort to divert from congested and unattractive portions of the country a thrifty and vigorous class of settlers to the South.

Advertisements of Southern localities offering special advantages for the location of manufacturing enterprises will be found on pages 54 and 55.

THE SOUTHERN COTTON INDUSTRY.

Exports of cotton during the past fiscal year constituted 23 per cent. of the total exports of the country, and the increase in their value was 65 per cent. of the increase in the total value of the country's exports. To those facts so significant of the importance of cotton in American trade must be added one showing the importance of Southern cotton manufacturing in American industry, to wit, during the crop year ended August 31 the takings of Southern mills were 50.42 per cent. of the total takings in the country. Ten years ago the South's share was less than 31 per cent. of the total. Since that time the consumption of cotton by Southern mills has steadily increased from 718,515 bales to 2,000,729 bales, while the takings by Northern mills have fluctuated from 1,601,173 bales in 1894 to 1,600,271 in 1896, to 2,211,740 in 1898 and to 1,967,635 in 1903.

The growth of the textile industry in

the South is indicated by the following table showing the takings of cotton during the past decade, the figures for Southern mills being those of actual consumption:

Year ended	Southern mills.	Northern mills.	Total Bales.
August 31.	Bales.	Bales.	
1894.....	718,515	1,601,173	2,319,688
1895.....	862,828	2,083,539	2,946,677
1896.....	904,701	1,600,271	2,504,972
1897.....	1,042,671	1,804,690	2,847,251
1898.....	1,231,841	2,211,740	3,443,581
1899.....	1,399,339	2,190,065	3,589,494
1900.....	1,597,112	2,068,300	3,665,412
1901.....	1,620,931	1,967,570	3,588,501
1902.....	1,937,971	2,050,774	3,988,745
1903.....	2,000,729	1,967,635	3,968,364

These figures are taken from the last annual report of Col. Henry G. Hester, secretary of the New Orleans Cotton Exchange, further details of which are published elsewhere in this week's issue of the Manufacturers' Record. They show that with a crop of 10,727,559 bales 6,677,166 bales have been exported, an increase of 36,356 bales, and 3,968,364 bales have been used in this country, a decrease of 20,381 bales. Bearing upon these figures and upon the efforts of so-called statisticians to manipulate the market for lower prices, the following statement by Colonel Hester, who is a statistician, should be well pondered:

Notwithstanding the endless discussion of stoppage of mills, short time and interference with consumption by high prices, American mills have practically used every bale they could obtain, and the limit to their consumption has been due to the scarcity of cotton. This applies to the mills as a whole. In the large number of establishments North and South there have been many exceptions, where short time and partial or temporary suspension has been due to high prices for raw material, without corresponding improvement in manufactured goods. The fact is that so far as domestic mills are concerned, there has not been enough cotton to go round. The season has had not been satisfactory; most of the mills bought or contracted for their supplies early, and as the rise in prices for raw cotton to nine cents and above did not take place until nearly 75 per cent. of the crop had been marketed, they were actually in excellent shape.

In the South from 100,000 to 150,000 bales more would have been consumed had conditions during the latter half of the season been normal as to supply and price, and in face of the talk of manipulation by speculators, at no time in the history of the staple has values been governed so thoroughly and completely by supply and demand.

The feeling from the start was that even with a crop of 11,000,000 or 11,250,000, every bale would be necessary to fill the wants of consumers and make up for the depleted stocks of cotton the world over at the close of last season. Mill-owners as well as others recognized this, and to a large extent profited thereby.

The rather notable developments of the year have not lessened the faith of the South in its textile future. During the ten years ended August 31, 1900, 327 mills were added to the South's equipment of 336 mills. During the past three years seventy-seven mills have been added, and in the meantime the number of spindles has increased from 6,267,163 in 1900 to 8,248,275 in 1903. In the meantime changes in established factories and the erection of new factories have marked a tendency toward the manufacture of a higher grade of cotton goods in the South, which, if not artificially interrupted,

must bring the South to the position of not only using more bales than the rest of the country, but using them in such a way as to produce goods of a greater total value than those produced in the rest of the country. There are, too, in the South men looking to the time when, with cotton become more and more of a surplus crop, thus inducing independence of market manipulation, the South will be enjoying its liberal share of America's dominance in the manufacture of cotton.

WHERE THE NEGRO PROBLEM IS TO BE WROUGHT OUT.

In an astute discussion in the current issue of the Review of Reviews of the race problem in the United States, meaning the negro problem, Dr. Lyman Abbott, seeming to yield much, demonstrates, nevertheless, the inability of most kindly and honest purpose to reach that viewpoint which is a preliminary necessity for the solution of the negro problem. He acknowledges that the peril of white women from a certain class of negroes is real; that we can neither amalgamate nor exterminate the negroes; that the negroes are a separate and distinct race, and that whatever they may come to be in the future, they are today the inferior race; that our fathers did not think that equality meant universal suffrage, and that the permanent provisions respecting suffrage in constitutions recently passed by six Southern States are not unjust. These points are axiomatic. They have long been accepted by everybody except the wilfully blind. To enunciate them is really not setting forth any new proposition, however that enunciation by Dr. Abbott may bear fruit of the proper sort.

Nor will anyone dispute his self-evident proposition that for the solution of the race problem is needed fraternity both between North and South and between black and white, though many persons may read differently from his meaning the concluding sentence of his article:

By just so much as we of the North are richer and stronger than our fellow-citizens in the South, by just so much we owe to them a hearty co-operation in the great problem which is remote to us, but imminent to them; which is a problem to us, but is a life and death struggle to them.

Unconscious cerebration has led Dr. Abbott to repeat in that sentence the expression of the radically wrong impression revealed in his suggestion that the South withdrew from the Union for the purpose of solving the negro problem in its own way and in his assertion that the South is the place "where the problem must be wrought out."

He contradicts himself, too, in stating that "the negro must have the right to the fullest, freest, largest development" in connection with his view that we owe the race primary and industrial education. Dr. Abbott's idea of primary education seems to appear in his statement that 65 per cent. of negroes cannot read and write, though his broader view is had in the following:

Its first and most pressing need is an education which will teach them so to use their hands and their brains that they can earn a living; an education in industry, economy, thrift; an education in those primary lessons which most of us Anglo-Saxons were taught in our great-great-grandfathers; an education which will impart those virtues which we have inherited from a remote ancestry. *** If this African race is to live as a separate race; if it is not to be amalgamated, nor to be subjugated, nor to be exterminated; if it is to live here, 10,000,000 people, separated by

race lines from 70,000,000 that surround it, then this race must have its own lawyers, its own doctors, its own preachers, its own teachers, its own authors, its own leaders, and this means higher education for the few as well as industrial and primary education for the many.

Granting that dicta which show that, after all, Dr. Abbott is clinging to some theories which have been discounted by facts, is not the straight way to the solution of the problem marked in his allusion to the education of what he calls "us Anglo-Saxons," a people, as he acknowledges elsewhere in the article, with ten centuries of Christian education behind them, while the negroes, a confessedly separate and distinct race and an inferior people, are but three centuries removed from unnumbered years of barbarism?

The point may become clearer if one should consider the fate of "us Anglo-Saxons" if, upon emergence from barbarism, two generations of us had been subjected to the same kind of education as that which has been forced upon the negro race ever since "conscience and humanity," reinforced by self-interest, as Dr. Abbott says, violently interrupted the natural process of solving the negro problem and thwarted radically the curriculum which had in two centuries changed the negro from a barbarian into a productive and valuable element in American life. The education of us Anglo-Saxons, which has taught us industry, economy and thrift and given us ability to use our hands and brains in earning an honest living, came first through bondage, but developed into potent good not through the application of any theories about the "elder brother" or about the debt of a "richer and stronger and wiser" race to one coming out of barbarism, but through the unaided and oftentimes resisted efforts of the race itself against tremendous odds. In these efforts grew distinctive race traits; in them were nourished self-respect and self-reliance, which are still notable in spite of the cultivation in recent years of the degenerate notion that men may look outside themselves for help in education.

The career of the negro has been just the reverse of all that. One of the greatest curses inflicted upon him has been the training predicated upon the theory that the negro is but a white man with a black skin, the training of him to look to the white race for his education, and the training that education implies necessarily ability to read and write. For his relief no Southern Educational Conference, no revival of Blairism is needed. The first essential is that the negro be thrown upon his own resources, and be allowed to work out his own destiny, as he is doing in thousands of instances, and to solve his own problems, just as was the task of us Anglo-Saxons centuries ago. When that fact has been beaten into the brains of "philanthropy" a great gain for the negro will have been made and philanthropy will be ready to recognize that because of the horrible mistakes of malevolence, supplemented by the terrible blunders of benevolence, the place where the problem must be wrought out is outside the South.

Southerners will gladly co-operate with their fellow-citizens elsewhere in this working out. They will suggest, first, that for the especial benefit of the negro a public sentiment be cultivated giving him in all parts of the country the right to "the fullest,

freest, largest development," at least equal to that now enjoyed by him in the South, and second, that a public sentiment be developed making it impossible for pothouse politicians and editors and Bourbon philanthropists to have a hearing for their exploitation of the negro for party purposes or personal gain. These things accomplished will find the negro living without diminution of numbers as one to seven or eight of the population, instead of as one to one or one to three, will prevent an utter destruction of the fraternity between the black and white which still persists in the South to some degree, in spite of the demoralization from outside interference, and a fraternity stronger than ever of the South for the North, a fraternity qualified and glad to help the North solve the social problems now menacing it.

Dr. Abbott says that there is "a noisy, though not very influential, minority in the South who wish to keep the negro ignorant." It might be well for him to know that there is a noisy, though not very influential, minority in the South who will support any lagging scheme for education of the negro by outside help as long as the "philanthropy" is eloquent with funds. But as long as that spirit is cultivated, just so long will the proper education of the negro be neglected and the solution of the negro problem be postponed.

THE COTTON OUTLOOK.

Cool heads in the South are slow to come under the bear influence in the cotton market of the government crop report showing the condition of the crop on August 25. They are beginning to understand the wide ramifications of the bear movement which is bound to develop at the opening of every cotton year with the intent of lowering the market through a sudden rush of cotton to sale. Farmers, who are the principal victims of bear raids, are inclined to give some heed to the observations of such a careful student of the situation as Mr. A. S. Johnston of Meridian, Miss. It will be remembered that last September Mr. Johnston estimated a crop of possibly 10,900,000, and certainly 10,750,000. That his forecast was practically correct was shown by the actual figures of the crop, 10,727,000. Under date of September 1 this year he writes "that since August 20 considerable deterioration had been noted in the crop in nearly all sections, the crop having made rapid and favorable progress during July and up to August 20." He adds, referring to the possibility of an early frost:

Should such an unfortunate disaster overtake the crop between the 5th and the 15th of October, the yield will be disappointingly small and the total crop nowhere near the consumptive power of the spindles.

Guesses or estimates as to size of crop at this season of the year are absurd and ridiculous, but with late frost, no further deterioration and good gathering season, it is not unreasonable to expect 11,000,000 to 11,500,000. Neither one of these figures would be excessive, and it will be an extreme case should the crop prove about 11,500,000. It is doubted by many well-posted authorities whether 11,500,000 can be gathered, as so much labor in recent years has left the farms, seeking employment in cities.

To sum up the situation, the writer does not hesitate to say it is critical and alarming. Increasing consumption, practically no supply on hand, a yield not exceeding 11,250,000, price already at figures which spinners claim are on a losing basis to them, there would be only one conclusion to draw, viz., a stoppage of many thousand spindles.

Spinners ought not to allow extravagant crop ideas promulgated by people interested in depressing prices to again mislead them, as they have so successfully done for past

few years. It is not probable the farmer will hurry his product to market, as he is in better shape financially than for years. With this idea in view, together with lateness of crop and strong active demand, it is not amiss to predict the smallest September movement for years, and prices that will be satisfactory to the farmers.

In the meantime it is interesting to note that on the day when the publication of the government crop report sent September options in New York down to 11.12 cents spot cotton sold in Augusta, Ga., at 12½ and 12½ cents a pound, and that the report of Col. Henry G. Hester, secretary of the New Orleans Cotton Exchange, shows that the amount of cotton brought into sight during the first four days of the season was 10,283 bales, as against 113,563 during the same period last season.

The Shelby Electric Co. of Shelby, Ohio, writes to the Manufacturers' Record as follows:

We have been advertising our Useful Light type of incandescent lamps for the past eight years, and during that time we have tried many mediums, among them being trade journals, our lamp being especially adapted for mill and factory use. Some time ago we placed an advertisement in your Daily Bulletin, and we are pleased to advise you that the results we have obtained from it exceed those obtained from any other source of trade-journal advertising we have tried to date. The business we are obtaining through this advertisement is not confined to any particular part of the country. We are surprised to note that inquiries are coming in from New England, as well as from the Pacific coast, that are directly traceable to the Daily Bulletin.

A Notable Development.

In the Southern textile world there have frequently been many instances of notable progress by individual concerns which illustrate the growth of the industry as a whole. Some of the largest of Southern mills have advanced from very small beginnings, in many cases the increases made having been paid for in whole or in large part from surplus earnings. One of the most notable instances of this kind is presented in the completion of the Brookside Mill No. 2 at Knoxville, Tenn. Ten years ago this plant had but 5300 spindles and 176 looms, but its trade increased steadily and additional capital was invested from time to time until early in 1902 the plant had about 26,000 spindles and 650 looms. It was then realized by the owners that further extensive enlargements were required in order to meet the demand for its product, which continued to grow rapidly, and to take care of new markets becoming available. Plans were then decided on for expending about \$500,000, and contracts were awarded for the addition which is now about finished. This addition brings the equipment up to about 60,000 spindles and 1300 looms, with space remaining for increasing further to 90,000 spindles and 2000 looms when trade conditions warrant that installation.

These mills are designed for odd goods, covering a wide range, and spin from 5s to 50s yarns. This notable development in the Southern textile industry is but another indication of what manufacturers in the cotton-growing States are doing to keep pace with the increase in consumption of cotton goods.

For Investors in Clay.

E. B. Rembert, president Timson Coal Co., Timson, Texas, in a letter to the Manufacturers' Record writes:

"We notice that you have in your paper some space devoted to undeveloped resources of the South and their fine openings for capital to invest in. We have near our town a large deposit of what has been proved by test to be the finest

clay of its kind in East Texas, and will make brick equal to the Coffeyville, Kan., brick, fine sewer pipe and all kinds of pottery. It glazes perfectly. There is an unlimited quantity of cheap fuel at the clay deposit in the shape of wood, though we have an unlimited supply of lignite that is cheaper than wood. We would like to get in touch with some party or parties whom we could get interested in the brick business, and think we could put them in position to make a fine and good investment and have a large business in a short while. If you can get us in touch with anyone we will appreciate it, as the only thing lacking here is capital enough to put in a plant of the size that the deposit justifies."

Launch of the Cruiser Maryland.

Many Baltimoreans will witness on September 12 the launching at the yards of the Newport News (Va.) Shipbuilding & Dry-Dock Co. of the United States armored cruiser Maryland. Miss Jennie S. Waters, daughter of Gen. Francis E. Waters of Baltimore, will christen the vessel. The Maryland, which is a duplicate of the West Virginia, launched last spring, has a length on load water line of 502 feet, the extreme beam is 69 feet 6½ inches, and full-load displacement, all ammunition and stores on board, 15,104 tons. Its designed indicated horse-power is 23,000, and its speed twenty-two knots. The vessel will have two sets of vertical inverted triple-expansion direct-acting propelling engines, each engine in a separate water-tight compartment. Steam at 250 pounds pressure will be supplied from sixteen water-tube boilers of the Babcock & Wilcox marine type, and arranged in six water-tight compartments. An armor belt will extend five feet below and four feet above normal load line from stem to stern. The main battery will consist of four eight-inch breech-loading rifles, mounted two in each turret on the center line of the vessel.

Galveston's Pluck Rewarded.

On September 8, 1900, Galveston, Texas, was swept by a hurricane which slew not less than 6000 persons and destroyed more than 3600 buildings, entailing a property loss of \$30,000,000. That was three years ago, and the spirit which brought Galveston from wreck is shown by the fact that during the past year the city's bank clearings were \$413,185,000, an increase over the preceding year of \$40,946,200, and the value of goods handled on its wharves was \$447,910,707, an increase of \$201,343,461. There were 1340 vessels, with a tonnage of 3,094,903, entered or cleared at the port, an increase of 298 vessels and of 871,975 tonnage. The port has many lines of steamships to foreign ports, two regular coastwise lines to New York and nine to Gulf ports, and during the past year work has been pushed upon the Galveston channel, the depth of which is to be increased from twenty-seven feet to thirty feet, with a width of 1200 feet. Upon harbor and other improvements there have been spent during the year \$2,019,420, while there is still available for government, seawall and private improvements more than \$5,000,000.

Labor for the Rice Fields.

Mr. J. R. Leguenec, secretary of the Abbeville (La.) Progressive League, says that labor in the rice belt will be in very heavy demand until the completion of the rice harvest. Ordinary labor is paid \$1.25 a day with board, but even at that figure planters are finding it a difficult matter to secure the necessary number of hands. It is stated that proper and thrifty workers can secure profitable employment for the next three or four

months, with a promise of permanent work. Agents are scattered through the surrounding States in an effort to get men, and the railroad lines have decided to run cheap excursions in order to induce a movement of labor from the North and West. It is not at all unlikely that such labor, being thus acquainted with the excellent opportunities, will become a permanent element of the population.

Montgomery's Power Equipment.

In a review of the industrial advance made by Montgomery, Ala., during the past year Mr. L. L. Gilbert, secretary of the Commercial and Industrial Association, notes the erection of woodworking and chemical plants, giving employment to hundreds of men, and the impetus derived from the appearance on the first of January of 5000 horse-power of electricity transmitted from the Tallasseee falls, thirty miles distant. The purpose of the company developing that power is to arrange for an especially low rate to manufacturing enterprises, and Mr. Gilbert believes that the coming twelve months ought to show material response to that opportunity. He suggests among the industries which would undoubtedly pay at Montgomery furniture, trunk, wagon, split-pulley, spoke and handle, shoe, jug and earthenware factories and a cannery; in short, any factory employing as raw material cotton, hardwoods, pine, clays, iron or coal, which would enjoy at Montgomery cheap and contented labor, artisanal water, equitable laws and reasonable taxes.

Basis of Houston's Growth.

To the oil industry, the rice industry and the lumber industry, with improved facilities for transportation, the Post of Houston, Texas, attributes recent manufacturing activity in that city, and the prospects of greater development in many lines. With fourteen railroads operating in and out of the city, it is expecting within the coming year five more, in addition to two suburban lines. Since 1890 the assessed valuation of Houston property has increased from \$12,888,518 to \$31,985,830, and during the past year the increase in bank clearings has been \$106,636,678. In the near future the city is to expend \$1,000,000 in street paving, sewerage and schools.

Manufacturer Wants Location.

Southern cities and towns possessing advantages as a location for manufacturing plants transacting a foreign as well as a domestic business are offered an opportunity to secure an industry now seeking site. The enterprise in question is projected by a manufacturer who at present has a large foreign and domestic trade in command, and wants to establish his plant at some point where inducements in land and buildings can be obtained. Information regarding this project can be obtained by addressing "Manufacturer," care Central National Bank, Washington, D. C.

Tennessee Phosphates.

The phosphate men in the Columbia field have decided to arrange for an exhibit at the World's Fair at St. Louis of the phosphate industry of Tennessee. Originating about ten years ago, this industry has developed from a production of less than 20,000 long tons in 1894 to 420,000 tons in 1901, and though production has been retarded this year, the field's possibilities are shown in the fact that there are phosphate deposits in twenty-seven counties of the State, and with an area of 2800 square miles.

It is estimated that 800 dwelling-houses were built in Memphis during the past year.

PROSPERITY OF THE SOUTH.

How Lectures on the Negro "Problem" May Hamper It.

[Editorial Correspondence Manufacturers' Record.]

Atlanta, Ga., September 4.

Just now the South is raising a paean of praise of W. P. Brown and his associates in the bull campaign in cotton, for the effect of their work has been to awaken the world to the actual shortage in cotton, the realization of which insures high prices to the planters for this year's crop. But for Brown's work it is quite probable that, as has often happened before, there would have been no advance in price until the crop was out of the hands of the farmers, and then the speculators and the mills, instead of the growers, would have made the big profits from the advance. Brown did not destroy a single bale of cotton, nor has he locked it up where it cannot be had. The shutting down of mills is due to the actual shortage in the cotton supply, and the bull operators only brought the condition to public knowledge. Even though they had never been heard of, there would not have been cotton enough to go around, and many mills would have had to close down awaiting the coming of the new crop. Some mills, tempted by high prices, sold their cotton rather than manufacture it, and this cotton has been resold by Brown to other mills. So great is the influence of the cotton mills of Europe and New England that all possible pressure has been brought against high prices, for the cotton manufacturer is necessarily a bear on prices. Low prices for the raw staple mean larger profits for the mill, and Europe and New England, which consume 80 per cent. of the South's cotton crop, holding no interest in this section other than to buy cotton at the lowest price, fill the world with exaggerated reports about the danger of cotton-growing in other countries, about the prospects of large crops and of production exceeding the demand. This is an old game played for many years to the great loss of the South. For once, however, Southern men have met the bears of Europe and America, and in the greatest cotton battle of the world's history have come out victorious. The South at least does not begrudge them the vast profits which rumor says they have reaped, for their work has made it quite certain that this year's cotton, including the seed, will bring to this section more than \$100,000,000 in excess of the largest amount ever received for a single crop. It is conservative to estimate that the growers of cotton will receive not less than \$600,000,000 for this year's crop, while as late as 1898, under the exceedingly low prices then prevailing, the value of the crop, including seed, was less than \$350,000,000. That was the lowest point reached, and then came a gradual increase which made the average of the last three years about \$500,000,000, to be followed now by a record-breaker of \$600,000,000 and possibly more. Estimating this crop at \$600,000,000, the total value of the last four crops, seed included, has been about \$2,200,000,000, while the total value of the four preceding crops, seed included, was about \$1,600,000,000. Let us take this year's crop at \$600,000,000. Of this, the South will consume in its own mills over 2,000,000 bales, and in doing so will add to the value of the raw staple about \$200,000,000; the value of the cottonseed-mill products will add another \$100,000,000, so the South will this year have poured into it entirely from other sections and other countries for cotton products alone about \$900,000,000.

Moreover, added to this magnificent showing for cotton is the grain crop, which likewise promises to be the best the South ever had. Here and there are found sections where grain has not done well, but for the whole South the yield will be surprising to the most sanguine. Wherever you meet Southern people, whether in New York, which is crowded with them, or at home, the talk is of universal prosperity. "We are going to have so much money we will hardly know what to do with it" is the substance of what has been heard from many leading Southern men during the last few days. The value of agricultural products in the South other than cotton will exceed \$900,000,000 this year, or a total to the credit of the work of Southern farmers of \$1,500,000,000, against \$600,000,000 in 1880. Since 1880 the South has increased its population by about 50 per cent., while it has increased the value of its agricultural products by 150 per cent. During the same period it has developed the value of its manufactured and mineral products from \$474,000,000 to about \$1,700,000,000, or a gain of 258 per cent. Taking agriculture, minerals and manufactures together, and the gain has been from \$1,074,000,000 to \$3,200,000,000, or 198 per cent., against 50 per cent. increase in population. And yet some Southern people—just a few—talk about the South not making much progress.

At Chicago the other day John Temple Graves of Atlanta, editor of the Atlanta News, which heralds him in big type as "statesman, orator and publicist," a heavy combination for any poor mortal to stagger under, painted a gruesome picture of the sad reign of poverty and lawlessness throughout the South. "Orating" as statesman and publicist and journalist on his hobby of the separation of the races, he must perforce give reasons therefor, and his fundamental reasons were that because of the presence of the negro the South could not thrive. Clothed in the choicest English, of which he is a master, with glowing oratorical flights, his speech might charm the ear, but fortunately for the South, his premises were all wrong. Referring to what he calls the negro "problem," Mr. Graves said:

"To the white men of the South the problem hampers its material development. It halts our growth. By the records of the census, it frightens immigration from industrial competition with the negro. It largely deters capital from investment in the shadow of an unsolved problem. It makes a standard of labor that prejudices all our Southerners against menial but honorable service. It depresses agriculture on the farms and property in the suburbs, and drives all who can afford the change to the safety afforded by proximity and police protection in the cities. The South is unequalled in the four great basic raw materials of coal, iron, cotton and lumber. And yet, while \$100,000,000 of our money goes yearly to Europe at 4 per cent., these great fields are scantily developed. And thus, while one great section of our country is halted in development, the free movement of men and money in all sections is hindered toward the inviting field of opportunity."

How often must the story of the South's amazing progress be told? How often must the facts be given to show a

redemption from the poverty following the wreck and ruin of the war, unparalleled in history? In agriculture and manufactures the South, despite all its burdens, all its false teachers, has in twenty years made a greater percentage of progress than the country at large. Since 1891, when it had less than 2,000,000 cotton spindles, it has increased its cotton mills by over 6,200,000 spindles, giving it now a total of 8,250,000 spindles, while during the same period England added only 1,650,000 to its 45,000,000 spindles, and New England added only 1,800,000 spindles to its 13,250,000. England and the North combined had in 1891 58,000,000 spindles, which they have since increased by 3,300,000, while the South had less than 2,000,000 spindles, which it has since increased by 6,200,000.

What has been done in cotton has to a considerable extent been done in lumber, coal and iron. Since 1880 the South has increased its pig-iron production from 397,000 tons to over 3,000,000 tons, reaching this year probably about 3,500,000 tons; it has increased its coal output from 6,000,000 tons to over 60,000,000 tons; its exports from \$261,000,000 to \$510,000,000. In 1880 it had 20,600 miles

of railroad, now it has about 60,000 miles; then it had \$23,500,000 capital invested in lumber operations, now it has \$181,700,000, and the value of its lumber products increased from \$33,900,000 in 1880 to \$188,000,000 in 1900. And yet Mr. Graves talks about the South not progressing.

In the light of such figures, which are open to the world, how utterly absurd seem the statements made by Mr. Graves. The fact is, starting with his false premises on the industrial line, he has largely overdrawn the conditions. He has painted a picture of the South which is not true, but it is a picture which will be distributed by Northern and Western railroads seeking to keep immigration from the South by the hundreds of thousands of copies, if not by millions. Europe, the North and the West will be flooded with it to prove that white people must not go South. His speech will counteract the good work of a hundred railroad immigration agents, for, false though it be, it will be distributed as the views of a Southern man. From beginning to end Mr. Graves' new things are not true things, and his true things are not new things.

RICHARD H. EDMONDS.

THE TEXAS-LOUISIANA OIL FIELDS.

[Special Correspondence Manufacturers' Record.]

Beaumont, Texas, September 5.

A personal survey of the Texas-Louisiana oil fields demonstrates that nobody knows what is going on here. The outside world has only the most hazy idea of the true situation—wells being drilled in a hundred locations and the production of the field for two months past running between 100,000 and 150,000 barrels of crude petroleum per day, while the development in every direction is proceeding so continuously that even those on the ground who try to keep in touch with developments claim nothing more than an approximate knowledge of the situation.

The world-famed Spindle Top, which set the speculating public all agog, making fortunes for a few, but proving a veritable Golgotha of dollars for the masses, has settled down to a plodding gait, wholly lacking in spectacular features, and for a year the hundred or so wells which have continued as producers—pumping propositions, all of them, except for an occasional spasmodic gush, lasting a few days, when a new well is brought in—have gone along with a daily production of something between 10,000 and 20,000 barrels. Contrasting this with the spouting geysers of the early days, when one well would throw out as much as 70,000 barrels a day, this is a beggarly display. And a visit to the fields reveals the departed glory of that camp, acres of dead derricks and rows of vacant stores and shacks giving their silent testimony to the change. All over the field there are wells pumping, and as all the pioneer territory has not yet been drilled, new wells are going in from time to time. But in the old field, where derrick stands to derrick so thick there is not an inch of space between, almost the last drop of oil has been pumped from below, and derrick, pump and casing, representing an investment of anywhere from \$10,000 and \$25,000 to each well, stand as monuments to the vastness of the activity that once was. Here and there rigs and machinery, and even casing, are being pulled up and taken down for shipment to the new field, the present Eldorado of the oil men—busy, uproariously busy, hustling Sour Lake—where a regular mining camp of 10,000 people has appeared in two months' time, and where there has been since July a

production of from 50,000 to 100,000 barrels of oil a day.

These contrasts, and, still more, the fact that the outside world poured millions into oil-company stocks, many of the companies being capitalized at wholly absurd figures, are responsible for the popular impression that Beaumont has died and the oil business played out. The truth is the oil business here was, at the height of the excitement, another tulip-bulb craze. The oil is all right, just as the tulip bulbs were, but neither could stand the capitalization the enthusiasts piled up.

There have been produced in the Beaumont field—Spindle Top—something like 18,000,000 to 20,000,000 barrels of oil since the date of the Lucas gusher, January 10, 1901, and there is small doubt that Spindle Top will be a producer for years to come. Had the field been in the hands of a few strong interests—oil men who knew the problems of storage, pipe lines and tank cars, and who would not have sunk well after well simply to form the basis for a stock-jobbing operation, taking no thought of the relations between supply and demand—the field would have lasted many years in a much larger way, the oil would have been produced only as there were facilities for handling it and opportunities for making sales, and on the whole the results would perhaps have been more generally advantageous and profitable to all concerned in the industry.

But, wasteful as the methods have often been, possibly the present stage of development of the industry would not have been reached had any other course prevailed. Speculators rushed in where old oil men hesitated to act, with the result that facilities for handling and marketing the oil were created by the very necessities of the case. When the Lucas gusher first came in there was no possible way to market the oil, and there was no market for the oil, even could it have been transported. There was not a single barrel of tankage, no tank cars, and, of course, no pipe lines. Now there are about 12,000,000 barrels of steel tankage in Texas and Louisiana and over 5,000,000 earthen tankage; there are nearly 150 miles of pipe line; there are refineries, among the largest and most complete in the world; there are tank steam-

ers and barges to carry oil to coastwise and foreign ports, and the market for the oil includes railroads of the South, steamships and factories almost the world over. A splendid system for handling and disposing of the oil has been built up, so that the industry has become permanently one of world-wide importance. Furthermore, a demonstration has been made of the vast extent of the oil territory, and prospecting is now going on at scores of places along the coastal plane of Louisiana and Texas. As an indication of present activity and facilities, in the sixteen days from August 13 to August 28, inclusive, the shipments of Beaumont and Sour Lake oil from Port Arthur amounted to 357,123 barrels, and from Sabine Pass 144,970 barrels—a total of 502,093 barrels. These figures surpass any previous record of shipments by water within a like period. The bulk of the shipments were of crude oil. On August 15 the schooner C. H. Moore took 212 barrels of lubricating oil from the Colonial refinery at Port Arthur to New Orleans. The same vessel carried thirty-two barrels of asphaltum. The J. M. Guffey Company tanker Winifred loaded 2000 barrels of lubricating oil for New York on August 24. Additional shipments by the Guffey Company included 147,523 barrels of crude, of which 68,369 barrels went to New York, 40,464 barrels to New Orleans and 38,690 barrels to Philadelphia. The same company shipped 40,806 barrels of solar oil to Philadelphia and 22,619 barrels of solar oil to New York. All Guffey shipments were from Port Arthur.

The Standard Oil Co.'s steamers and barges loaded 87,024 barrels of crude at Port Arthur for New York and 72,190 barrels of crude at Sabine Pass for New York. The Texas Company loaded 56,907 barrels of crude at Port Arthur for New Orleans; the Sun Company 40,096 barrels of crude at Sabine Pass for Philadelphia and Marcus Hook, and the Higgins Oil & Fuel Co. 23,684 barrels of crude for Louisiana points.

The rail shipments from Beaumont and Sour Lake during the same 16-day period were approximately 400,000 barrels, the bulk of which went to the Southern Pacific Railroad from Sour Lake. The Southern Pacific is filling its storage tanks in Texas and Louisiana, the stores of oil in which had become considerably reduced, and with this object in view is largely neglecting the shipment of commercial freight into Sour Lake.

I will devote separate chapters to the situation at Beaumont, with its vast refinery and pipe-line interests, and to Sour Lake and Saratoga, which are the present great centers of production. In this article I will deal with the situation in the Louisiana fields as it was a few days since on the occasion of a visit to them. In any oil field conditions are likely to change from hour to hour, so that the statistics of today may become inaccuracies by tomorrow; but, all the same, facts of last week will give a fairly good idea of the situation in general as it exists today in any but an unusually active field, and the present comparatively low price of oil has considerably checked the development work in all the fields, some to a greater extent than others. Thus while wells are being put down all over the known and suspected oil territory of Texas and Louisiana, there would be a much greater activity had the price of crude oil remained at the high figures of a few months ago.

The greatest development in Louisiana is in the Jennings field, where there are over thirty producing wells, with a total output of some 8000 barrels a day. A dozen other wells are now being drilled, several of which are being bailed out and are expected to be brought in soon, and

there are some ten others which will become producers when cleaned out. All of these wells are pumping propositions. There was one marvelous gusher brought in a year ago which ran as much as 200,000 barrels in a day through a pipe line. It was capped on account of inability to take care of the enormous output, and then, as frequently happens, the gas pressure subsided, and this well became an ordinary pumping proposition. It is declared that no "dusters" have been brought in here, although there are occasional salt-water wells, some of which ran as low as 20 per cent. oil. The Jennings oil is somewhat lighter than the Texas, being about 25 gravity, and is lacking in sulphur and poisonous gases, so that there have been no casualties to workmen about the wells. It is claimed that as a steam producer it is about 25 per cent. more effective than the Texas oil, and that in refining there is a loss of only 1 per cent. The wells here are deep, averaging about 1850 feet, and it is the belief that on this account, and from the conduct of the wells which have been producing for a year or more, the field will be one of great permanence. The present pioneer territory is about one-half by three-quarters of a mile in extent. Three or four wells are being drilled near by, and if they come in, the field will be extended three-quarters of a mile farther. This field is some five miles north of Jennings. Prospecting is being done five miles south of Jennings, and also between Jennings and the present field, and a contract has been let for a well northeast of town. There are quantities of gas south, east and north of Jennings, and it is an evident axiom that no one can tell whether there is oil there until they go after it.

There has been no great excitement over the Jennings field, no companies with great capitalization, and the wells are not being drilled on every inch of available space, as on some portions of Spindle Top. Real estate is changing hands to some extent, the outright purchase plan, instead of the leasing system, as in Northern oil fields, having apparently secured a permanent hold in the South, but the highest price recorded is \$25,000 an acre in the proven field. Land adjoining the proven ground has reached the limit of \$10,000 an acre. There has been no sale of producing wells.

Operators in this field are mostly from Pennsylvania, West Virginia, Ohio, Indiana and California, and are oil men of experience. Crowley people are largely interested in the Jennings, or Mamou fields, as they are called sometimes, owning five of the producing wells there. Companies have also been organized to drill in several directions around Crowley. The Crowley Oil & Mineral Co., very strongly organized, proposes to build a pipe line from the fields to Abbot, thirteen miles, and a local company is being organized to complete the line from there to Crowley. The company is now building a large storage tank.

Facilities for taking care of the Jennings production furthermore include an eight-inch pipe line five and one-quarter miles long, owned by the Southern Oil Co., extending from the field to the Southern Pacific tracks at Mermannou, where there is a loading rack of twenty-six cars capacity. The Heywood Bros. & Jennings Oil Co. has a four-inch pipe line to Jennings, and each of these companies has two 38,000-barrel storage tanks at the railroad. The Southern has a branch pipe line one and one-half miles long to its refinery at Jennings, operated under the name of the Union Refining Co. This refinery, which cost \$85,000, has three 500-barrel stills, giving a capacity of 1500 barrels

rels a day, and is soon to begin regular operations.

From this showing it will be seen that although not developed on the scale of the Beaumont field, yet the Jennings field is provided with very complete facilities, and is in shape to handle an increased production as it may be brought about.

A considerable amount of money has been spent in development work at Welsh, ten miles west of Jennings. Friends of this field declare their faith in the future importance of Welsh, but so far it seems to be largely a matter of faith. Some ten wells have been sunk, four of which are producing, though not heavily. Prospecting still continues there.

A well is being sunk at Rayne, nineteen miles east of Jennings, and the presence of gas in that section leads to the belief that oil will be encountered. The citizens of Rayne, through their Progressive Union, have offered as an inducement to further prospecting a bonus of \$1500 to the first man who brings in an oil well there.

The Heywood Brothers, who were early in the Beaumont field, and who were pioneers at Jennings, have done a good deal of pioneering elsewhere. They are heavy and successful producers and pipe-line op-

erators, and are active in every promising field. At Anse-la-Butte, near Lafayette, they have three producing wells, two of them 600 feet deep and the third 1050 feet. The total yield of the wells is from seventy-five to eighty barrels a day. They are drilling another well and express confidence in a satisfactory development here. The Southern Pacific, which is drilling in several of the promising fields, is putting down a well here; so is the Morisi syndicate, local, and a company of New York capitalists. J. T. Chadick, a California oil man, has started a well 600 feet north of the proven field. Gen. Nelson A. Miles and ex-Governor Hogg not long since bought a large tract of land near the proven field, though they have not yet begun drilling.

There was talk some time since of excellent oil "symptoms" at Bayou Bouillion, where gas bubbled above the surface of the ground at a very lively rate. The Heywoods accordingly sunk a well there. They spent \$12,000 in putting down a first-class well and were rewarded for their money and their pains by tapping a strong vein of superheated salt water, which proves that even in their breeding grounds feathers are not always sure signs of a duck's nest.

ALBERT PHENIS.

FOR THE EXPANSION OF AMERICA'S COAL TRADE.

By F. E. SAWARD.

[Written for the Manufacturers' Record.]

There is always something to note in regard to the progress of this country or certain parts of it in the matter of coal output. I was very forcibly struck by this in reading over a statement made about twenty years ago by H. M. Chance, who was on the Pennsylvania Geological Survey. He was of the opinion that our output of bituminous coal might by 1910 reach the total of 200,000,000 tons; that Pennsylvania might get up to 70,000,000 tons, though he feared the growth in West Virginia would cut this to about 58,000,000 tons. The fact remains that in 1902 Pennsylvania had grown to 98,000,000 tons, while West Virginia had increased from about 2,000,000 tons to 25,500,000 tons in the same period, and the country's output to 254,000,000 tons. Verily, all the prophecies in regard to our country are of little moment. We move at a pace which is beyond the wildest dreams of many persons who do not come in contact directly with our industrial matters. No one conversant with the facts can gainsay this statement, and there is much for us to do along the same lines.

As our production of coal increases we will naturally have something over and above home requirements, and there will be an opportunity to send coal abroad, but we should prepare it better. There is an evident and appreciable distinction between the French and American conceptions of what each considers equivalent terms. The result was that on receiving United States coal at Marseilles it was considered inferior to English coal sold under the same categorical name, the reason being that American exporters did not endeavor to maintain the relative proportions of large and small. This will be given due and proper care in the future, and we should have a trade to Mediterranean ports. Within the past month I have had many inquiries from abroad. This shows that interest is again awakening, and as our prices are getting down to normal we ought to be in position to do business again. I have always been a firm believer in the possibilities of shipping our coal to the continent of Europe.

Another market which is surely open

to us is that of Mexico. The largest users of coal in Mexico are the railroads and industrial centers. Little or no coal is used, nor is it a necessity, in the homes of the Mexican people. The requirements are purely along the lines of securing cheap coal for manufacturing purposes. These requirements make the question of supplies an important one to almost every new undertaking. At present the principal quality of coal used is medium-grade bituminous steam coal. The grades imported into Mexico are Pocahontas, McAlester, I. T.; Fairmont, Davis, Alabama, New Mexico and Texas. The coals of the Southwest reach Mexico by rail, but the Northern coals of the United States are shipped largely from the Eastern seaboard to Tampico. Prices of coal range from \$3.75 to \$4.75 per ton at Laredo to \$15 and \$20 in the more inaccessible places. The average price at El Paso is from \$5 to \$7 gold. Belgium, Germany and England have been making efforts to introduce coal into Mexico, but with little success, as the American coal of the same quality has been more successful on account of the economy derived from the short haul.

There are new concerns opening up territory in West Virginia, and this coal will be wanted when it is ready, for as the old mines are worked out there must be new ones opened, for coal does not grow again; there is no new crop on the old ground, as in corn or cotton. Even on the Kanawha this is true, and therefore one need not be surprised to learn that such an extensive concern as the Marmet Company has recently acquired another big tract of coal lands on the Kanawha river. The last purchase is 1000 acres in extent and lies seventeen miles from Charleston. The newly-acquired land is only a few miles from the purchase of the company in that vicinity made a year ago. The latest deal includes many coke ovens, and the concern will be in shape to do an extensive business in that line.

The coal roads are getting in shape to do an increased business, as there is likely to be a very active trade this fall and winter. Baltimore & Ohio Railroad officials report a large quantity of coal be-

ing moved and that the company's facilities for handling the coal are better than ever before. They say there are more cars and locomotives in use than at any other time in the history of the road, and there is absolutely no danger of a short supply by reason of the road not being able to move the product from the mines to the market. The Norfolk & Western has far outgrown the possibilities of a single-track road, and to meet this new condition a considerable amount of double-tracking has been done. Simultaneously with the progress of this work changes in alignment are being made. Curves are being taken out and grades cut down and the whole road is being whipped into such shape as will enable the handling of maximum trainloads at the minimum of expense. This will mean large dividends later on, but for the present it seems to be considered that the interests of stockholders can best be served by putting earnings back into the property.

Now that there has been a settlement of the wage question in Alabama, one may expect to see a larger output of coal. It is expected that the demand for coal will continue to improve until there will be need for more than can be gotten out. It is feared that another car shortage is going to be on this coming winter which will cause iron and coal prices both to go up. The coal production in Alabama today is greater than it has been in four months. Preparations are being made to increase this quantity already, the Pratt Company soon to be in a position to have a daily output, and on a large scale, of coal from its mines in Jefferson county. The Bessemer Land & Improvement Co. will also be ready to mine coal from recently-opened mines on a large scale in the next few weeks. The Southern Railway will build a 12-mile extension in Bibb county to reach some undeveloped coal fields, and in return there will be big development.

Settled labor conditions in Alabama will be productive of further development there. One of the results of the award by the wage-scale arbitration commission made itself manifest when it was stated that Pennsylvania coal operators were looking out for a place for the location of a large mine. As soon as the award was announced a representative opened negotiations for any available lands that might be found. As soon as the location is selected one of the largest mines in the district will be opened. It is stated the eagerness with which both sides agreed to arbitration of their difficulties had its weight in determining the investment of considerable capital in the Birmingham district. It was one of the clever things that work was not suspended while the matters in dispute were under investigation. This most reasonable condition surely reflects great credit upon all persons concerned or connected in any way with the coal industry of Alabama.

One of the interesting features of the recent mouth in trade circles has been the blowing in of the new furnace of the Alabama Consolidated Coal & Iron Co. In addition to its furnaces, coal mines and ore mines, the company is also an extensive manufacturer of coke, with ovens at its plant in Tuscaloosa county, as well as at Lewisburg, near Birmingham. The coke plants are so conveniently arranged that the furnaces are supplied with it at minimum cost for haulage, and the company gets the full benefit of this economical arrangement. With the coke ovens now building the company will soon have 800 in operation. The bodying up of the properties of the company has been one of the most marked characteristics of the management and has served to create the present success which it enjoys. The president, Col. T. G. Bush, has been a

conspicuous factor in these achievements, and under his capable direction the Alabama Consolidated Coal & Iron Co. has attracted the attention of the entire industrial world, as well as earned handsome dividends for the stockholders, these dividends being paid regularly every quarter.

A \$10,000,000 Coal Company.

Announcement is made of the completion of plans to develop about 400,000 acres of coal lands in the Big Sandy river section of Kentucky. The Great Northern Coal & Coke Co., chartered recently with a capitalization of \$10,000,000, has purchased the property, and will arrange for immediate development. The Great Northern Company will own the lands, several companies will be organized to operate the mines and coke ovens, a transportation company will be formed to conduct the railways, and a selling company will market the coal and coke. Each will be a separate corporation with different officers. The selling company will have its headquarters at Cincinnati, Ohio, and the parent company will have its offices in New York. The properties are about ninety miles from Maysville, Ky., and a railroad will be built to transport the coal to that point, where will be erected two immense coal tipplers equipped with the latest improved machinery for unloading from the cars to barges. The promoters of the Great Northern Coal & Coke Co. are ex-Senator Camden and Sprigg Camden of Parkersburg, W. Va.; P. L. Kimberly of Sharon, Pa.; F. A. Dinley and Robert Newton of Chicago; George C. Howe of Duluth, Minn., and J. C. Mays of Paintsville, Ky.

Cotton in Texas.

Mr. M. Holderman, manager of D. June & Co., manufacturers of engines, boilers and saw mills, Waco, Texas, in a letter to the Manufacturers' Record, writes: "The farmers are better supplied with feedstuffs than they have been in years, which is a big item in this country. The cotton crop is still uncertain. Two weeks ago it looked as if we were going to have a very large crop, but boll weevils and worms have destroyed a large percentage of the crop. Where two weeks ago the indications were that we would get on an average three-fourths of a bale to the acre, at the present time it seems that a quarter of a bale would be a good estimate. At the same time the plant is in a healthy condition, and if the insects will let up within a week or ten days we still have a chance to make a big crop. This being the case, the conditions in this country will be the best ever known in consequence of the higher price of products generally grown in this section. It is fair to say that the country is in much better condition, notwithstanding the cotton crop, than it was three years ago or since."

In connection with the coming meeting at Baltimore of the League of American Municipalities, the Municipal Journal and Engineer of New York devotes more than ten pages to a description of Baltimore with special reference to its street-cleaning, garbage-collecting, conduit systems and fire department.

The commandant of the Pensacola navy-yard has recommended that Congress be asked to appropriate \$1,400,000 for the construction of a concrete and granite dry-dock at the yard, in addition to \$1,145,515 for other improvements, including a central power-house, a shop and office building and a quay wall.

AMERICAN COTTON CROP IN 1902-1903.

By COL. HENRY G. HESTER, Secretary of the New Orleans Cotton Exchange.

The cotton crop of the United States for the year ending with the close of August amounts to 10,727,559 bales, showing an increase of 46,879 bales over that of 1901-1902, an increase over that of 1900-1901 of 344,137, and over that of 1899-1900 of 1,201,143.

The increase of the crop was in the "Other Gulf" States, the production of which was 10.57 per cent. more, while Texas (including Indian Territory) was 5.41 per cent. less, and the Atlantic States dropped off 3.62 per cent.

Compared with last year, in round figures, Texas, including Indian Territory, has decreased 162,000 bales, the group known as "Other Gulf" States, consisting of Louisiana, Arkansas, Mississippi, Tennessee, Oklahoma, Utah and Kansas, has gained 363,000, and the group of Atlantic States (Alabama, Georgia, Florida, North Carolina, South Carolina, Kentucky and Virginia) has fallen off 154,000.

While the crop as a whole brought a good return, notwithstanding the high prices during the latter part of the season, the outturn has not been as great as was expected. The total value carefully figured out is \$42,755,595 above last year, but it is less than year before last (when the crop was 344,137 bales under this year) by \$13,797,267.

The cause will be made apparent when it is stated that in the crop of 1900-1901 September averaged 10.3 cents per pound, and that from October to February the monthly averages ranged from 9.50 cents in October to 9.21 cents in February, or, stated in bales, from \$52.47 in September to \$47.52 in February.

This year the range from September to January (average monthly values) was 7.83 cents to 8.61 cents, the price of 9 cents not being touched until February, when nearly \$8,000,000 bales of the crop had been marketed, the monthly average sales of which were from \$40 to a little over \$44 per bale.

Another important feature that affected values more or less was the results of the unusual and long-continued rains, which reduced the grade of the Texas crop and of the section tributary to New Orleans.

Investigations at New Orleans, Galveston and Houston show an average of one-quarter grade under last season.

Houston says "the picking in Central and North Texas in the latter part of the picking season was of such a character that the oil mills refused to buy the cottonseed, and that south of Waco produced a lower grade crop than for years."

Savannah, Charleston and Memphis were more or less affected, but not to as great an extent, the average reduction in grade for the entire crop having been from a sixteenth to an eighth.

A fair average of price for the United States is 8.82 cents per pound, comparing with 8.06 cents last year, 9.03 the year before and 7.65 for 1899-1900, the highest price touched during the season having been 13.5% and the lowest 7.5%.

Value of Commercial Crop.

The average commercial value per bale of the crop is \$44.52, against \$41.01 last year, \$47.63 the year before and \$38.55 in 1899-1900.

The total value of the crop compared with the previous five years is as follows:

	Bales.	Values.
1902-1903.....	10,727,559	\$480,770,282
1901-1902.....	10,680,680	483,014,687
1900-1901.....	10,383,422	494,567,549
1899-1900.....	9,436,416	363,784,320
1898-1899.....	11,274,840	282,722,967
1897-1898.....	11,139,994	320,552,606

When it is considered that the combined values of the past three crops resulted in payment to farmers, common carriers, merchants and other handlers of over \$1,413,000,000, their importance as the great factor in the prosperity of the South may be fully appreciated.

American Mills.

Notwithstanding the endless discussion of stoppage of mills, short time and interference with consumption by high prices, American mills have practically used every bale they could obtain, and the limit to their consumption has been due to the scarcity of cotton. This applies to the mills as a whole. In the large number of establishments North and South there have been many exceptions, where short time and partial temporary suspension has been due to high prices for raw material, without corresponding improvement in manufactured goods. The fact is that so far as domestic mills are concerned, there has not been enough cotton to go round. The season has and has not been satisfactory; most of the mills bought or contracted for their supplies early, and as the rise in price for raw cotton to nine cents and above did not take place until nearly 75 per cent. of the crop had been marketed, they were actually in excellent shape.

In the South from 100,000 to 150,000 bales more would have been consumed had conditions during the latter half of the season been normal as to supply and price, and in face of the talk of manipulation by speculators, at no time in the history of the staple has values been governed so thoroughly and completely by supply and demand.

The feeling from the start was that even with a crop of 11,000,000 or 11,250,000 bales, every bale would be necessary to fill the wants of consumers and make up for the depleted stocks of cotton the world over at the close of last season. Mill-owners as well as others recognized this, and to a large extent profited thereby.

All of this season's commercial crop with 131,000 additional from last year's reserves has gone to feed the world's spindles, or, in other words, has actually been worked up into yarns and fabrics.

The consumption of American cotton by Northern mills may be put at 2,016,000 bales, against 2,050,000 last year. They took in round figures 1,968,000 and consumed about 48,000 of their stocks at the close of last year, leaving them with a stock of about 75,000 bales. The comparisons for the past two years are as follows (thousands omitted):

	This year.	Last year.
Northern mill stocks beginning of year.....	123	122
Takings.....	1,968	2,051
Supply.....	2,091	2,173
Year's consumption.....	2,016	2,050
Northern mill stocks close season.....	75	123

Making the total consumption of American cotton North and South:

	This year.	Last year.
North.....	2,016	2,050
South.....	2,001	1,988

Total American United States..... 4,017

3,988

An increase for the year of 23,000 bales.

The use of foreign cotton by American mills during the past year has decreased materially. Manufacturers North and South have taken of Egyptian and other imports (mostly Egyptian) the equivalent in American weights of 144,232 bales, against 180,802 last year and 109,941 the year before. Only a small portion was consumed in the South, but the use of Egyptian in the mills adjoining the Southern cotton fields is increasing rapidly, this season's consumption amounting to 9578 bales, equal in weight to 13,858 American bales, against 1640 last year, equal to 2311 American. There are now seven Southern mills in operation using foreign cotton, and three building, a total of ten, against six last year, the total number of spindles being 76,210 active and 19,000 building, in all 95,210, against 57,050 last year.

Takings of Cotton by American Mills.

The following tables sum up the entire takings and consumption of cotton in the United States:

	This year, bales.	Last year, bales.
North-American	1,967,635	2,050,774
Foreign, reduced to equivalent in bales of American weights	130,374	173,491
Total takings, North.....	2,098,009	2,229,265
South-American	2,000,729	1,937,971
Foreign	12,858	12,311

Total takings, South..... 2,014,587

1,940,282

Total takings, North and South..... 4,112,596

4,169,547

*1578 actual bales, mostly Egyptian, equal to 13,858 American bales.

+1640 actual bales, mostly Egyptian, equal to 2311 American bales.

The consumption, all kinds, was:

	This year.	Last year.
North.....	2,146,374	2,229,162
South.....	2,015,000	1,939,611
Total consumption, all kinds.....	4,161,374	4,168,773

In the South the phenomenal growth of spindles continues. Not only have the spindles in the mills in operation been increased by 483,461, but my returns show there are actually in course of erection 1,184,245 new spindles, making the total (old, new and not completed in the Southern States) 8,248,275. In addition to this, there are a number of new mills projected in the Southern States which will materialize in the near future.

Annexed yearly figures since 1890 are submitted as of special interest. The column of Northern mills shows "takings," while that of Southern mills comprises actual consumption:

Year ending August 31.	Northern mills. Bales.	Southern mills. Bales.	Total. Bales.	Crop. Bales.
1890.....	1,799,258	546,894	2,346,152	7,311,392
1891.....	2,027,362	604,561	2,632,023	8,652,597
1892.....	2,190,766	686,080	2,876,846	9,055,379
1893.....	1,687,286	743,848	2,431,134	6,700,365
1894.....	1,601,173	718,515	2,319,688	7,549,817
1895.....	2,083,829	862,838	2,946,677	9,901,251
1896.....	1,600,271	904,701	2,504,972	7,157,346
1897.....	1,804,680	1,042,671	2,847,351	8,757,964
1898.....	2,211,740	1,231,841	3,443,581	11,199,994
1899.....	2,190,056	1,399,399	3,589,494	11,274,840
1900.....	2,068,300	1,597,112	3,665,412	9,436,416
1901.....	1,967,570	1,620,931	3,588,501	10,383,422
1902.....	2,050,774	1,937,971	3,988,745	10,680,680
1903.....	1,967,635	2,000,729	3,968,364	10,727,559

It needs but a glance at these figures to show what the Southern manufacturers are to the cotton market and the influence they exert. Thirteen years ago the North took 76.7 per cent. and the South 23.3. Today the percentages are—North 49.58, South 50.42. "And the trend of the spindle continues southward to the near neighborhood of the cotton field, where, within a few years, the largest percentage of the entire crop will be worked into yarns and fabrics."

An Abnormal Feature.

An unusual feature of the year's movement has been the return of American cotton from abroad for delivery on contracts in New York and New Orleans. The total thus received amounted to 42,376 bales, including 37,383 reported at New York, 4626 at New Orleans and 367 at Burlington, Vt., embracing, say, from—

Liverpool.....	34,751
Havre.....	1,386
Bremen.....	5,106
Genoa.....	766
British North America.....	367

Total American returned..... 42,376

It is needless to say that this return of American cotton in no possible way affected the "net" receipts at ports or the crop total.

Referring to details given below, which include a slight revision of last year's total, the consumption of American cotton on both sides of the Atlantic and across the Pacific during the past year has been 10,850,000, against 10,657,000 last year and 10,171,000 the year before.

American Cotton Crop for Four Years.

(Year Ending Close of August.)

	1902-1903.	1901-1902.	1900-1901.	1899-1900.
Port receipts.....	7,724,104	7,679,290	7,666,452	6,724,364
Overland to mills.....	1,083,383	1,103,953	1,140,237	1,161,182
Southern consumption.....	2,000,729	1,937,971	1,620,931	1,597,112
	10,808,216	10,721,214	10,427,620	9,492,665
Less taken by Southern mills from ports.....	80,657	40,534	44,198	56,249
	10,727,559	10,680,680	10,383,422	9,436,416
Total crops.....				
Exports:				
Great Britain.....	2,851,528	3,035,497	3,063,828	2,338,550
France	785,679	745,969	729,013	703,962
Continent and Channel.....	3,039,959	2,859,344	2,745,917	2,907,580
Canada	123,677	122,261	102,523	109,361
Total exports.....	6,800,843	6,763,071	6,641,281	6,660,043
Stock close of year.....	182,040	164,773	240,534	88,132
Northern mill takings.....	1,967,635	2,050,774	1,967,570	2,068,300
Average gross weight of crop per bale, pounds.....	508	508.43	510.28	504.12

*Including Mexico, Japan and China, details of which are given in Export Table.

COTTON CONSUMPTION OF THE SOUTH.

Census of Southern Mills, Made Up From Actual Returns of the Mills, by Mail and Telegraph, for Year Ending Close of August, 1903.

Notwithstanding the abnormal conditions which prevailed during a considerable portion of the year, the actual consumption of cotton by mills in the South has been the largest yet recorded, the total for the first time passing the 2,000,000 mark, and practically "tieing" the mills north of Mason and Dixon line.

As stated elsewhere, the South's consumption this year would have reached 100,000 to 150,000 bales more than it did had the shortness of the supply and consequent high prices not interfered during the last half of the season. It was simply a question of not "enough cotton." As it was, however, most manufacturers bought or contracted for the principal part of their supplies early, before the great advance, and of the 640 active mills on the list, 534 ran during the entire year, though some of them to a greater or less extent curtailed their consumption.

The facts show that up to the close of June the mills had taken something like 200,000 bales more than up to the same time last year, and it was this that enabled them to tide over the period of absolute scarcity which prevailed during July and August, whereas last year they were enabled to supply considerable of their wants during those months. As it was, however, for want of cotton or inability to secure it unless at prices entailing heavy losses, 412,546 spindles were stopped altogether during the month of June, 615,683 during July and 1,035,986 during August. These figures refer to active mills in the South only, not including the 174,576 spindles which from various causes did not run during the entire year.

Of the active mills there were entirely shut down during all of August in—

Alabama.....	20
Georgia.....	5
Kentucky.....	1
Louisiana.....	26
Mississippi.....	2
North Carolina.....	26
South Carolina.....	14
Tennessee.....	18
Texas.....	6
Virginia.....	6
Total.....	106

In addition to these, a number ran on more or less short time. Included in the 106 are the three mills of the Pacolet Manufacturing Co., three mills of the Clinton Manufacturing Co., and the Mary Louise Mills, all of South Carolina, partly destroyed in a flood in the Pacolet river early in June, embracing 79,044 spindles entirely wrecked and 80,902 spindles rendered temporarily useless.

The total consumption of the South for the year was 2,000,729 bales, against 1,937,971 last year and 1,620,931 the year before—an increase of 62,758 over last year and of 379,798 over the year before.

The feeling in favor of the erection of new mills is, if anything, greater than ever before, the record showing new mills and spindles in process of erection in every Southern State but Arkansas and Missouri. Large additions are being made to old concerns, the total of new spindles to be installed being 1,184,245, many of which may come into play at some time during the coming season; in fact, with all the new spindles completed, the South's capacity, on the basis of this year's average weight per bale, as given by the Southern mills, and pounds consumed per spindle, will be nearly 2,368,000 bales.

I desire to emphasize the fact that there has been no guesswork in this report. The list of mills in the South was made up after many weeks of patient and careful investigation, by correspondence in every State and by comparison also with the publications of the "Textile World" and "Blue Book," just issued, both of which are considered standard authorities as compilers of mill directories, so that I have had the benefit of their investigations as well as of my own experience of many years in locating the mills. Every mill in the South has reported but two small concerns, their combined consumption not reaching 2500 bales.

In reference to the increase of spindles, it is interesting to note that South Carolina alone is building new mills and adding to old concerns over 571,000 spindles, and North Carolina 294,000.

How the cotton-manufacturing industry has advanced is best told by the following showing. The yearly net additions are now mills, less deductions on account of burnt, dismantling, etc.:

Total mills in the South consuming raw cotton September 1, 1890 (old, new and not complete).....	236
1890-91, net additions.....	4
1891-92	16
1892-93	12
1893-94	17
1894-95	49
1895-96	40
1896-97	7
1897-98	59
1898-99	59
1899-1900	113
1900-1901	25
1901-1902	28
1902-1903	24
Total mills in the South consuming cotton (old, new and not completed), September 1, 1903.....	740

An increase since 1890 of 404 mills. I have used the words "mills consuming cotton" because there are factories known as woolen mills, each consuming considerable raw cotton annually, and which naturally are classed as cotton consumers.

In this connection the record of spindles since 1860 may prove of still more interest:

1860.....	205,359
1870.....	338,860
1880.....	561,360
1890.....	1,819,291
1895.....	3,177,310
1900.....	6,267,163
1901.....	6,531,894
1902.....	7,512,982
1903.....	8,248,275

Annexed figures show interesting and valuable details, which speak for themselves, viz.:

Total number of mills last year.....

Crossed out and merged into other concerns.....

New and uncompleted added to list.....

Total number cotton mills in the South.....

The record of spindles in the South shows:

	This year.	Last year.
Total in operation.....	6,889,454	6,406,993
Idle	174,576	110,136
New, not completed.....	1,184,245	996,858
Grand total.....	8,248,275	7,512,983

Showing an increase of spindles, active, idle and not complete, over last year of 723, and a net gain of spindles at work of 483,461.

As indicated by the tables annexed, the total consumption in all the mills, old and new, for the year was 2,000,729 bales, against 1,937,971 last year and 1,620,931 for the season of 1900-1901, an increase over last year of 62,758 and over the year before of 379,798. The changes in each State as compared with last year were as follows:

	Gains. Bales.	Losses. Bales.
Alabama.....	13,733	....
Arkansas.....	452	....
Georgia.....	22,820	4,340
Kentucky.....	....	14
Louisiana.....	4,207	....
Mississippi.....	384	....
Missouri.....	23,314	....
North Carolina.....	....	790
South Carolina.....	....	1,417
Tennessee.....	6,274	....
Texas.....	....	1,985
Virginia.....	71,254	8,496
Totals.....	....	62,758

The average consumption per spindle in the mills in operation has been 4.43 pounds less than last year, and .67 more than the year before.

The comparisons for the past eleven years are annexed:

Average Consumption Per Spindle by Southern Mills.

	Pounds per spindle.
1902-1903.....	128.44
1901-1902.....	140.87
1900-1901.....	135.77
1899-1900.....	154.58
1898-99.....	162.61
1897-98.....	155.66
1896-97.....	140.16
1895-96.....	142.87
1894-95.....	164.45
1893-94.....	147.80
1892-93.....	169.30

The course of consumption since 1889-90 is shown at a glance as follows:

	Consumption.	Bales.	Increase.	Decrease.
1889-90.....	546,894	546,894	....	....
1890-91.....	604,661	57,767	....	....
1891-92.....	686,030	81,419	....	....
1892-93.....	743,843	57,768	....	....
1893-94.....	718,515	....	25,333	....
1894-95.....	862,833	144,323	....	....
1895-96.....	904,701	41,863	....	....
1896-97.....	1,042,671	137,970	....	....
1897-98.....	1,231,841	189,170	....	....
1898-99.....	1,309,399	167,558	....	....
1899-1900.....	1,597,112	197,713	....	....
1900-1901.....	1,620,931	22,819	....	....
1901-1902.....	1,937,971	317,040	....	....
1902-1903.....	2,000,729	62,758	....	....

Net increase since 1890 of 1,453,835 bales.

Southern Cotton Mills in 1902-1903.

	MILLS.	In operation.	Old.	New.	Idle.	New, not completed.
Alabama.....	66	59	3	4	....	....
Arkansas.....	6	2	3	1	....	....
Georgia.....	132	115	....	12	....	....
Kentucky.....	9	9	....	....	....	....
Louisiana.....	8	5	....	....	....	....
Mississippi.....	22	17	1	....	1	....
Missouri.....	2	3	....	....	....	....
North Carolina.....	267	241	4	6	....	16
South Carolina.....	163	141	1	1	....	30
Tennessee.....	31	26	....	....	....	1
Texas.....	18	15	....	....	....	....
Virginia.....	16	12	....	....	....	1
Total.....	740	644	6	39	....	561
Last year.....	716	626	5	31	....	54
Year before.....	688	612	6	26	....	43

*Including ten mills for foreign cotton, seven in operation and three new, not complete.

†Including mills commenced this year and those under this head last year not yet completed.

	LOOMS.	Active.	Idle.	Not complete.	Total.
Alabama.....	14,240	80	2,425	....	16,745
Arkansas.....	150	73	....	....	223
Georgia.....	30,906	704	1,068	....	32,688
Kentucky.....	1,365	....	....	....	1,365
Louisiana.....	1,672	....	869	....	2,541
Mississippi.....	3,936	196	275	....	4,466
Missouri.....	361	....	....	....	361
North Carolina.....	41,009	213	8,038	....	49,260
South Carolina.....	69,152	475	12,329	....	78,966
Tennessee.....	4,450	722	640	....	5,822
Texas.....	2,072	273	....	....	2,344
Virginia.....	5,657	483	2,036	....	8,166
Total.....	171,441	3,267	29,366	....	202,796
Last year.....	152,963	1,934	23,180	....	183,077
Year before.....	132,991	2,131	17,581	....	153,003

*Includes looms in South Carolina mills that were active until June 6, 1903, when 279 were destroyed by a flood in the Pacolet river and 266 rendered temporarily useless.

	SPINDLES.	In operation.	Total.	Idle.	Not completed.
Alabama.....	789,334	674,243	....	6,000	10,196
Arkansas.....	30,906	11,656	....	9,250	....
Georgia.....	1,270,797	1,266,965	....	44,064	59,988
Kentucky.....	56,052	50,676	....	....	5,376

SOUTHERN CONSUMPTION OF AMERICAN COTTON.					
(Year Ending August 31. Actual Figures Reported by the Mills.)					
States.	No. mills.	Looms.	Spindles.	Bales.	
Alabama.....	58	14,240	1903.	1902.	
Arkansas.....	2	150	11,656	2,915	2,463
Georgia.....	114	30,318	1,266,865	425,699	402,379
Kentucky.....	9	1,365	30,676	21,356	25,706
Louisiana.....	5	1,672	66,752	18,003	18,017
Mississippi.....	18	3,905	130,194	37,981	33,774
Missouri.....	2	301	14,816	4,723	4,329
North Carolina.....	242	41,066	1,754,221	551,802	528,488
South Carolina.....	140	66,152	2,448,262	613,275	614,065
Tennessee.....	26	4,450	194,386	47,506	49,923
Texas.....	15	2,072	69,682	23,607	17,333
Virginia.....	12	5,657	177,696	42,048	43,983
Total.....	3643	171,441	\$6,889,454	2,000,729	1,937,971
Less consumed and taken from Southern seaports, and included in port receipts.....			80,657	40,534	
Net consumption to be added to crop.....				1,920,072	1,897,437
^a Mills in operation only. For total in South see other table.					
^b Employed in mills in operation. For total spindles in South see other table.					
^c Exclusive of seven mills in operation using foreign cotton—one in Alabama, one in Georgia, three in North Carolina and two in South Carolina.					
^d Spindles working American cotton only. For statement foreign see elsewhere.					
UNITED STATES' TAKINGS OF AMERICAN COTTON.					
	1902-1903.		1901-1902.		
Total crop United States.....	10,727,559		10,680,680		
Stocks at ports beginning of year.....	164,773		240,534		
Total supply.....		10,892,332		10,921,214	
Exported during year.....	6,677,166		6,640,810		
Sent to Canada.....	123,677		122,261		
Total.....	6,800,843		6,763,071		
Less American cotton returned from foreign ports:					
New York.....	37,383				
New Orleans.....	4,626				
Burlington, Vt.....	367				
	42,376				
Burnt at ports.....	6,758,467		6,763,071		
Stock at close of year.....	5,461		4,625		
	162,940		164,773		
Total takings for consumption, United States.....	6,923,968		6,932,469		
Of which—					
Taken by spinners in Southern States—total.....	2,000,729		1,937,971		
Taken by Northern spinners.....	1,967,635			2,050,774	

PROGRESS OF THE NEW TRANSCONTINENTAL LINE.

[Written for the Manufacturers' Record.]

As is generally known, the Kansas City, Mexico & Orient Railway is now under construction from Kansas City, Mo., across Kansas, Oklahoma, Texas and Northern Mexico to Topolobampo Bay, on the Gulf of California, and it will be the short line from the great middle West to the Pacific coast.

The full significance of this transcontinental project is just beginning to be realized by the business world. As the great enterprise progresses toward completion, and as the future of this vast new field of commerce in the Southwest, in Mexico and the countries of the Pacific opens before the enlightened understanding, one begins to see its almost boundless possibilities. President Roosevelt, when speaking to the people of California lately, declared that the theater of the world's greatest activity in this new century would be in the Pacific and the countries bordering upon that mighty ocean. Let the reader remember that the geographical center of the United States between Maine and California is nearly 200 miles west of Kansas City, at Fort Riley, Kan.; let him bear in mind that the government census of 1900 showed only about 10 per cent. of the nation's population in that western half, although it is now being rapidly populated; that immense areas of cattle and sheep ranges are being converted into farms, and farther West millions of acres, by government aid, will be made fruitful by irrigation; let him remember that an irrigated region will support a denser population than any other—let him dwell upon these and other pertinent facts and he will begin to have a faint idea of the meaning of this new development.

ALLIED LINES AROUND THE EARTH.

Edward Dickinson, general manager of the Kansas City, Mexico & Orient, has just returned from Europe, where he went some weeks ago with President Stilwell. Mr. Dickinson states that before he left London negotiations were finished by which the Hamburg-American Steamship Co. agrees, upon completion of the Orient road, to put on a line of steamers between its western terminus and Hawaii, the Philippines, China and Japan. The ser-

vices will be extended as occasion requires to other countries of the Pacific.

The Orient road has a traffic alliance with the Missouri Pacific and Wabash lines. It will thus reach the Atlantic, and, in connection with the Hamburg-American steamers across the Atlantic and in the Mediterranean and East Indian service, will complete the circuit of the globe. Then, through the alliance with the Gould lines, the new road will reach nearly all parts of the South, that new-old field which has shown such marvelous development, especially in manufacturing, in the past twenty years. Mr. Gould, the president, and Mr. Harding, the general manager of the Missouri Pacific, are on the Orient's board of directors, along with other men prominent in the railroad world.

The capital of the International, one of the construction companies building the Orient, has been increased from \$7,000,000 to \$10,000,000, and plans made for a direct line to the City of Mexico by building from a point on the main line in Texas to a connection with one of the Mexican roads farther down on the Rio Grande. New interests in France and Holland have lately been enlisted in the building of the road, and its backing is of the strongest character both in Europe and America. The Mexican government has been especially liberal in granting concessions, because the road will open up a region rich in resources, but hitherto almost inaccessible because of lack of railway facilities.

INTERVIEW WITH MR. DICKINSON.

"We may enter Kansas City next year," said Mr. Dickinson when interviewed. "We are grading now on this side of Wichita towards Kansas City. The line in operation between Wichita and Fairview, Okla., 129 miles, is having all the traffic that it can well care for at present, and it will do a great business this fall when the crops and live-stock are moving freely. The crops in that country are simply immense this year, and it is enjoying the greatest prosperity that it has ever known. Our new line will take many homeseekers into Oklahoma this fall. On our recent excursion, opening

the line to Fairview, we carried 1200 passengers, many of whom went with a view to present a future investment in real estate or business.

"Kansas has broken her record again this year in the greatest wheat crop ever grown in any State, and promises a fair crop of corn. Hay and forage crops are abundant. The same reports come from Oklahoma and Texas. The great Southwest is growing as it has never grown before, and the railroads cannot meet the demands made upon them at the present time. As soon as the completed portions of the Orient road are put in operation they will have all the business that they can handle. We go through a country that only needs railroad facilities for still more rapid development.

"In Mexico prospectors are busy all over our field locating or buying mineral claims to be opened up as soon as the road gets there. Many mines now dependent upon burro transportation for getting their ores to a smelter will multiply their output as soon as the railroad is within reach, and will ship the low-grade ore that is now thrown away or left on the ground. The possibilities of mining development in Northern Mexico

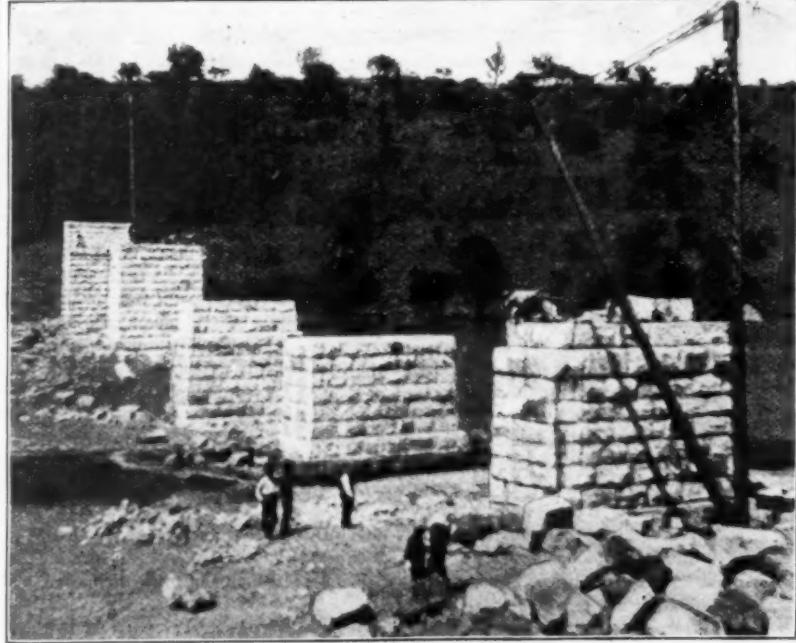
tained, one-half of the grading completed, 350 miles of road in operation, including 125 miles of the Chihuahua & Pacific already built; contracts made with the Western Union for complete telegraphic service and the American Express Co. for express service, while, in addition to the Hamburg-American contract, the railroad company has its own line of coast steamers, which is already in operation from its port between Guaymas and Mazatlan."

CHIEF ENGINEER PARET TALKS.

M. P. Paret, chief engineer of the Kansas City, Mexico & Orient, has just returned from a tour of inspection along the line from Kansas City to the Pacific coast. Mr. Paret spent three weeks in the saddle in Mexico and made a thorough examination. He expresses himself as greatly pleased with the work of the field engineers and contractors.

In speaking of his trip the chief engineer said:

"Our engineers have made 5000 miles of surveys in locating the line of 1630, and I think have located the most advantageous route that could be found between the Missouri river and the Pacific coast. In the mountains we do not ex-



BRIDGE WORK ON THE K. C. M. & O. RY. IN THE SIERRA MADRE MOUNTAINS OF MEXICO.

are beyond calculation. Then the timber, the fruit-growing, the ranching and farming interests awaiting development there—well, our trouble will not be to get business, but to take care of it.

"Look at the situation in Kansas City today. The managers and superintendents of all these lines gathered here to confer with our business men and determine what can be done to relieve the freight congestion. Grain for Kansas City is being refused by some of these lines until their tracks can be cleared. Everyone admits that the transfer and track facilities at this great railway center are inadequate to meet the growing demands of trade. The outer-belt line, to be built in connection with the Orient road, will do more than anything else to relieve this situation. We mean to push it as much as possible along with the other work in hand, but we cannot do everything at once. Our energies are distributed over a wide field. When one stops to think of it, the results accomplished since Mr. Stilwell mapped out this great project, three years ago or less, are simply marvelous. A transcontinental line has been surveyed and located, the greater part of the right of way ob-

scured out estimated maximum grade of 2½ per cent. We have no long tunnels to make and no very expensive bridges. The grading between Wichita, Kan., and Sweetwater, Texas, 430 miles, is almost finished. Tracklaying has reached Fairview, Okla., and will proceed south from there. Material has been shipped to Sweetwater, Texas, for laying track north from there to the Red river.

"In Mexico we have fifty kilometers in operation east from Chihuahua towards the Rio Grande. West of that city we have the Chihuahua & Pacific, which will form a link in the through line and is now in operation. From Minaca, its present terminus, we have graded forty kilometers and work is well under way on the next thirty-five, while a section of fifteen kilometers more is just being opened up. The masonry is completed on the first section and well advanced on the second. The last preliminary lines have been run by the engineers, working from both sides of the Sierras. We pursue what is called a high or ridge line across the mountains instead of following the valleys and the watercourses. This will be a great saving in tunnel and bridge work, obviating danger from washouts and make opera-

tion of the road easier. The two engineering parties working west and east towards each other made a remarkable showing. When they met in the mountains the level of the two lines "tied up" only about eighteen inches apart in elevation on the same ridge.

"On the west coast the road has been completed and put in operation from the port of San Blas, about seventy-five kilometers, and the grade is made for fifty kilometers more. When we reach the mountains, about 200 kilometers from the coast, there will be a heavy traffic in ore and other freight from and to the mines. Meanwhile we shall have good business as far as the line is opened, for it saves that much of the haul by pack-mules and wagon train. Located along the Fuerte river are extensive fields of sugar-cane, corn, beans, etc., which furnish freight to the road now.

"I am more and more impressed by the prospects for business on our line every time I go over any portion of it, and I scarcely know which promises better, the local or the through business to the Pacific. It will be immense when developed, and it will be good all the way. We pass from the north temperate zone nearly to the tropics, and include in the range of products almost everything in the vegetable, mineral and animal kingdoms. If there were space, it would be interesting to note here just the names of these products. Much of this field is developed, more or less, already, but, taken as a whole, only the beginnings have been made. The marvel to me is that this short way to the Pacific has not been opened before."

STILWELL A DIRECTOR.

President Diaz Invites Him to the Mexican National.

A dispatch from Houston, Texas, reports that President Diaz of Mexico has requested President Arthur E. Stilwell of the Kansas City, Mexico & Orient Railway to represent the Mexican government on the board of directors for the Mexican National Railway, and that Mr. Stilwell has signified his intention of accepting. The widening of gauge on the Mexican National Railway will, it is further reported, be entirely completed about the middle of October, and it is said that standard-gauge trains will then be run via Laredo to the City of Mexico. The line has also been shortened. A dispatch from Austin also reports that the Mexican International and the Mexican National will be consolidated on October 1, making a system of 2057 miles. The "Orient" is to be connected with it via Spofford Junction, Texas.

PIPE LINE COMPLETED.

The Standard Oil Co. in Kentucky and Tennessee.

[Special Cor. Manufacturers' Record.]

Barbourville, Ky., September 5.

The announcement is now made that the Standard Oil Co. has completed its Kentucky and Tennessee pipe-line system. When the extent of this system and the roughness of the country through which it passes is taken into consideration, together with the difficulty experienced in securing the proper material for the lines, its completion this early is regarded as marvelous.

The line begins at Riverton, Fentress county, Tennessee, which is the Bob's Bar development. It goes on a straight line from there to Somerset, Pulaski county, Kentucky, cutting through Sunnybrook and Slickford, and having lateral branches to the Beaver creek development and the Cooper districts in Wayne county. This section of the line has been built for a few years. The extension goes west from Somerset, through Laurel county

and into Manchester, Clay county. From this line an extension goes into the Knox county fields, having its terminal at Barboursville. Northeast from Clay county the line continues, touching the northern boundaries of Perry and Leslie counties, and continuing through the southern end of Breathitt county to Sublet, in Magoffin county; thence it proceeds through Johnson county, and from there on through the southwestern end of Lawrence county directly through to the West Virginia line.

From the Magoffin county point a branch extends north into the Bath and Rowan county developments. Floyd and Knott counties already have a pipe line. It begins on the northern boundary of Knott county and extends north to Floyd and Johnson counties to the Whitehouse development. This branch will be extended to connect with the main line.

The total cost of this system, which has been completed in less than a year, will be considerably over \$1,000,000, and altogether it covers nearly 270 miles of country, some of it extending through the roughest sections of the mountainous region of Kentucky.

When the announcement was first made that the Standard had decided to build a pipe line to furnish an outlet for the oil output of Kentucky and Tennessee many thought the situation did not justify the construction of the line as a business proposition, but foresight probably disclosed what was coming. At that time there were but two real developments in the State of Kentucky, with a few producing wells in Tennessee. Knox county, Kentucky, was just beginning to take a place in oil production, and up in Bath county a few scattering developments had been made. However, soon after the announcement, renewed interest began to be manifested in all sections through which the route of the proposed line extended. Wildcatters began to flock in, important extensions to the developed fields were made, and a number of the more venturesome wildcatters entered territory many miles apart from development and opened up new fields. The Standard entered the field as a producer and secured vast acreage, and in some instances bought out the holdings of other companies.

Pending the completion of the pipe-line system the Standard erected a number of large steel storage tanks in the various developments in which the oil might be stored as it was produced. All that were stationed in the southern part of the field have been filled for some time. In the central developments there are still a number of unfilled tanks, and into these the oil will be run until the pipe line has received a thorough test. As far as the Licking river the line is in perfect condition, but tests have not yet been made from there on to the West Virginia line. This will require several days' time, and the date for running the first oil through to the refineries has not been announced.

The prices the oil output of Kentucky and Tennessee will command when it is placed on an equal basis with the grades from the older fields is causing some speculation among operators. Some think the completion of the line and the transporting of the oil from this field to Parkersburg, W. Va., will signalize advances in the prices, while others think, in view of the expense the Standard went to in the construction of the line, the present prices will remain in effect, advances or decreases being made in accordance with the rise and fall of prices in the older fields. Again, it is claimed that the grade of oil from this field is inferior to the product of the older fields. However, an analysis of oil from the Whitehouse development of the Standard in Eastern

Kentucky and the Lacy and Somerset grades of the southern fields of the State prove them to be the same in quality, but the Whitehouse product commands now \$1.26 a barrel, which is more than is paid for the Ohio and Indiana product, while the Somerset and Lacy oil commands but ninety-nine cents a barrel. The Somerset and Lacy oil represents by far the greater part of the output suitable for illuminating purposes, the Whitehouse product being very limited. This output is the result of the Standard's own operations, and it is claimed by some that this is the cause of the higher price paid for that grade of oil, but this is hardly probable. The Whitehouse oil is shipped in tank cars at present.

Since the route of the pipe-line system was first planned several extensive developments have been made in various parts of the State, and the operators in these sections are now clamoring for pipe lines. A survey for a line to the Whitley county fields has already been made and the construction work will begin very soon. The most promising field without pipe-line facilities is that of Cumberland county. A large number of big wells have been drilled in, some of them showing an initial daily production of as much as 100 barrels. The Standard evidently has faith in that field, as it has had a number of rigs at work for some time and has contemplated the building of a line. However, not until the past few days have the other operators in that field taken decisive measures toward the establishment of the line. Just as soon as they would show enough oil on the surface to justify the extension of the line the Standard promised the line would be forthcoming. Last week all the operators met and decided to put all the wells to pumping regularly. W. S. HUDSON.

Breckinridge Building, Danville, Ky.

THE BIRMINGHAM DISTRICT.

Conditions in the Various Industries Centered There.

[Special Cor. Manufacturers' Record.]

Birmingham, Ala., September 7.

The week opens with a fair demand for all grades of iron, with the buyer of small lots paying practically the list price for it. There are rumors, however, that some sales of rather larger proportions are going for a little less money, the cut being from twenty-five to fifty cents per ton on the \$12 for No. 2 foundry price. The demand for charcoal iron is light, but the furnaces have orders for two or three months yet. The failure of the railroads to grant the fifty cents reduction asked by the furnace men was a great disappointment to the iron producers, as it was hoped that in this way the dull market for iron would be made up to some extent. The railroads took the position that iron was moving pretty well at the present rate, and a reduction was not yet due. It was intimated that the reduction might be made a little later if the conditions warranted it.

Foundries and machine shops report some quietness this week, incident, the owners think, to the dull season of the year. The brass men are in clover, doing a big business. Finished iron and steel are in poor demand. The scrap-iron men are doing very little. Coke is fairly active, and coal doing well. Steel is active, and the output of both the billet mill and steel mill at Ensley is grabbed up as soon as made. General business is good, though seasonal, and wholesale trade has picked up wonderfully since the miners got back to work again.

The Empire Plow Co. has at last gotten its plant at Ensley in running shape, and is now at work. The first work was done last Monday, and the past week has been

taken up in getting the various departments in working trim. The force will consist of about 100 men. The company will use 3000 to 5000 tons of steel a season.

J. E. Hollingsworth has secured the contract to construct the buildings of the Birmingham Drop Forge & Machine Co. at Bessemer, and is now at work. The plant will be on five acres of land near the plant of the United States Cast Iron Pipe & Foundry Co., and the investment will be something like \$100,000. W. E. Nicholls, who has been master mechanic of the pipe plant mentioned, will have charge as general manager.

George Van Zandt, a Chicago man, is opening up extensive coal properties in the western portion of Etowah county. He has 750 acres near Altoona, which has good working seams, and it is expected that 1000 tons a day will be produced in a short time. Mr. Van Zandt will also open mines on Sand mountain, further north.

The De Soto Mining Co. at mines in Talladega county is getting out ore that runs \$16 a ton.

H. W. L.

The Iron and Metal Trades.

In its review of the week the Iron Age says:

"The enlarged production of pig-iron has not been accompanied by a heavy increase in stocks of iron unsold, as might have been expected. The increase in anthracite and coke stocks was only 43,610 tons. This shows that consumption is still proceeding under high pressure. In confirmation of this our market reports show that in some sections of the country an urgent demand exists for pig-iron on spot or for quick shipment. This, however, does not apply to all sections, as complaint comes from the South that furnace companies are finding considerable trouble in getting some of their customers to take iron which had been sold at higher prices. But it may be said that it often happens that the very people who are thus repudiating contracts are purchasing iron from other parties at lower prices, so that this does not really indicate a reduction in consumption."

"The Southern railroad companies last week considered the application of Southern pig-iron manufacturers for reduced freight rates on pig-iron, but decided adversely. It is likely that as the railroads of that section are even now suffering from a shortage of cars to move cotton and other products, the consideration of a lower freight rate on pig-iron will be deferred until a more urgent necessity appears for taking such action. The adverse action may be regarded as distinctly favorable to Northern pig-iron manufacturers, who are thus temporarily saved from increased competition."

Big Kentucky Coal Project.

As we go to press Senator J. N. Camden of Parkersburg wires regarding the big coal project mentioned on page 135:

"We have recently purchased a field of about 350,000 acres on the waters of the Big Sandy, in Eastern Kentucky, of the finest fuel and coking coal in the United States, but have no plans for its development at present."

Anniston Pig-Iron.

Mr. John B. Lee, who is superintendent of the iron-making department of a car-building plant at Chicago, is quoted by the *Hot Blast* as stating that on account of the superior quality of the pig-iron made at Anniston his company is purchasing more largely of it than of any other iron in the country.

The sales in the Joplin (Mo.) district during the week ended September 5 were 10,206,370 pounds of zinc ore and 942,320 pounds of lead ore, valued in the aggregate at \$208,530.

RAILROADS.

[A complete record of all new railroad building in the South will be found in the Construction Department.]

AN ELECTRIC COAL ROAD.

A 50-MILE Line from Fort Smith Through Sebastian County.

Mr. S. A. Williams, president of the Sebastian Electrical Co., Fort Smith, Ark., writes the Manufacturers' Record:

"This interurban enterprise is to run trolley cars over the coal area of the county, connecting all present and (as near as may be) all future towns with each other and with Fort Smith. The present towns are Jenny Lind, Bonanza, Huntington, Mansfield, Hartford, Mines Nos. 3 and 4 of American Smokeless Coal Co., Burma, Montreal, Greenwood and Wicheville. Greenwood is the county seat of the county and the geographical center. It will therefore be the power point, with substations where needed. The length of the line as now proposed will be about fifty miles, and will connect about 38,000 population (including Fort Smith), or about 750 people to the mile. It will connect with the 'Frisco, Missouri Pacific, Choctaw, Midland Valley, Arkansas Central and Kansas City Southern railroads.

"As yet we are not ready for construction bids, etc. The right of way is being secured as fast as an undertaking of that kind can be accomplished, but we hope to commence construction in the near future.

"This county (Sebastian) is practically one coal bed. The coal is of a semi-bituminous and anthracite nature, and ranges as high as 80 per cent. fixed carbon, and is smokeless. While mines have been in operation for more than fifteen years, its real development as a coal-mining center has only begun. There are now eight large mining towns in the county, each employing from 600 to 1500 miners. All are constantly increasing their openings, and hence their output. As the number of openings increase, and as the deposits are practically exhaustless, the population of all these points will increase with the development of its mines. Moreover, the coal land occupied by the present actual operators is a very insignificant portion of the coal area of this county. Syndicates are rapidly purchasing large tracts of this land, and the probabilities are that inside of two or three years we will have double the number of mining towns in Sebastian county.

Will Extend to Clintwood.

[Special Cor. Manufacturers' Record.]

Norton, Va., September 5.

The Cumberland Transportation, Light & Power Co., which obtained a charter some few weeks ago from the corporation commission of Virginia for the purpose of building and operating an electric car line connecting the towns of Big Stone Gap, Stonega, Appalachia, Dorchester, Norton, Wise, Glamorgan, Coeburn and Tom's Creek in Wise county, held its first stockholders' meeting at the office of the First National Bank of Norton yesterday. The citizens of Clintwood in Dickenson county were represented at this meeting by Roland E. Chase and Gallie Friend of that town, and who are president and first vice-president of the Clintwood Bank of Clintwood. On behalf of the town they made the company the proposition to secure subscriptions to one-half of the increased stock necessary to extend this line to Clintwood from Tom's Creek, and the company decided to make the extension, and has asked for an amendment to its charter to that effect. The proposed ex-

tension to Clintwood is looked upon by many as promising to be the best-paying part of the line.

Memphis & Gulf.

Seely Dunn, vice-president and general manager of the proposed Memphis & Gulf Railroad, is reported as saying that surveys have been made and that construction will begin soon, the money for the enterprise having been secured. The construction will be done by the Gulf States Construction Co., recently organized at New Orleans. The line is to run from Memphis, Tenn., via Meridian, Miss., to Pensacola, Fla. Chester H. Pond of Morehead, Miss., is president of the company, and the other directors besides Mr. Dunn, whose headquarters are at St. Louis, are John L. Lewis of Meridian, Miss.; Scott E. Rice of New Orleans and Murray F. Smith of Vicksburg, Miss. In reply to inquiries Mr. Dunn denied that the Illinois Central was back of the new company, and further stated that it was an independent line.

St. Louis, El Reno & Western.

The latest information concerning the St. Louis, El Reno & Western Railway is that the Middle States Construction Co., of which J. E. Henderson is president, at El Reno, O. T., has the contract for constructing and equipping the line, which is now being built from Guthrie southwest through El Reno. The grading on sixty miles of road is about 75 per cent. completed, and track-laying is to begin at Guthrie about October 1. The contracts for track-laying and for building depots, section houses, water stations and fencing have not yet been let. C. C. Nelson of Fort Scott, Kan., is president of the company, and H. A. Genung, El Reno, O. T., is its chief engineer.

Entrance to New Orleans.

Advices from New Orleans report that the city council has granted the Louisiana Railway & Navigation Co., formerly the Shreveport & Red River Valley Railway, entrance to the city. This permits it to reach the wharves over the proposed Belt Line of the New Orleans Terminal Co. or 'Frisco system. If the 'Frisco does not build the belt within a year, it is provided that the Louisiana Railway & Navigation Co. may go ahead and build the line.

Will Build a Big Dam.

The Virginia Passenger & Power Co. of Richmond will build a 40-foot dam on the Appomattox river near Petersburg, Va., for the purpose of developing power to operate electric generators for the system. It is also proposed to build extensions to Mechanicsville and Ashland. There is, according to further report, a possibility that the company will buy the old Farmville & Powhatan Railroad and convert it to an electric line.

New Mexico to Texas.

Concerning the report that the Santa Fe Central Railway Co. will build an extension from its line at Torrence, N. M., to Big Springs, Texas, Mr. Allan G. Kennedy, chief engineer, writes the Manufacturers' Record that surveying parties for the work are just starting into the field. Such a line would be 300 miles long and would connect with the Texas & Pacific Railway at Big Springs.

Coal & Coke Extension.

The Coal & Coke Railway Co. is receiving bids at the office of W. H. Bower, general manager, Elkins, W. Va., for the grading and masonry of about ten miles

of single-track railroad from the mouth of Copen run, near Burnsville, Blackstone county, West Virginia, to a point on Perkins fork of Cedar creek, including one tunnel 1100 feet long.

Railroad Notes.

Wabash Railroad interests, according to a dispatch from Morgantown, W. Va., have purchased 4000 acres more of coal land in Monongalia county, and have begun grading for the extension from Pittsburgh, which will run almost north and south through the county, starting near McCurdyville.

The Columbus, Memphis & Pensacola Railroad Co., organized at Columbus, Miss., is reported to be a 'Frisco project. The immediate purpose is to build from Columbus to Aberdeen, Miss., thirty miles, to connect with the 'Frisco and Illinois Central. The ultimate plan is to go to Pensacola, about 250 miles.

According to reports from Philadelphia, the Wabash Railroad may enter that city by building a connection from the Western Maryland Railroad at Baltimore or a point north of that city to Parkersburg, Pa., and going thence to Philadelphia over the line of the proposed Philadelphia & Western road, an electric project.

The Northern Central Railway Co. reports for July as follows: Gross earnings, increase \$294,500; expenses, increase \$212,400; net earnings, increase \$82,100. For seven months ending July 31: Gross earnings, increase \$1,242,100; expenses, increase \$1,193,500; net earnings, increase \$48,600. Comparisons are made with the corresponding periods of last year.

The Council of State of North Carolina has declined a proposition made to lease the Atlantic & North Carolina Railroad, the line from Goldsboro to Morehead City. The proposition was made by Walter W. Mills of Raleigh and H. L. Finlayson of Goldsboro. The offer was an average annual rent of 2 per cent. and a proposition to build an extension from some point on the line to a distance of fifty miles, the extension to go west of Kinston, N. C.

It is reported from Louisville, Ky., that a double-track electric belt railway is to connect that city with Jeffersonville and New Albany, Ind. This system is to be formed by a combination of the Kentucky & Indiana Bridge & Railway Co. and the Louisville & Southern Indiana Traction Co. Cars on the new lines are to be running by October 1. According to the plan \$250,000 are to be spent for constructing new track to make it a double line.

The Victor Cotton Mills property at Charlotte, N. C., was bid in by Dr. John H. McAden at the sale held September 7. His bid was \$85,000, and it is understood that he represents the directors who will reorganize the company and continue operating the plant. However, the sale has to be confirmed by the court. There are 12,700 ring spindles and full complement of machinery for manufacturing 20s to 30s yarns in the mill.

Georgia granite from Lithonia and Stone Mountain is moving at the rate of fifteen carloads daily to St. Louis to be used for curbing, paving and numerous other municipal improvements.

The Southeastern Millers' Association, representing Kentucky, Indiana, Georgia, Tennessee and North Carolina flouring mills, has elected Mr. E. M. Kelly of Nashville, Tenn., president.

It is proposed to build a cotton-thread mill at Central, S. C., and subscriptions to a stock company are now being solicited.

TEXTILES.

[A complete record of new textile enterprises in the South will be found in the Construction Department.]

Correspondence relating to textile matters, especially to the cotton-mill interests of the South, and items of news about new mills or enlargements, special contracts for goods, market conditions, etc., are invited by the Manufacturers' Record. We shall be glad to have such matter at all times, and also to have any general discussion relating to cotton matters.

A \$500,000 Mill Completed.

One of the most modern cotton-manufacturing plants in the South is that of the Brookside Mills of Knoxville, Tenn., which has just completed the extensive additions announced in the Manufacturers' Record more than a year ago. About \$500,000 has been the cost of the new buildings, textile machinery and other apparatus, bringing the Brookside equipment up to 60,000 spindles and 1300 looms, though the buildings are designed to take an additional 30,000 spindles and 700 looms. The plans of Brookside Mill No. 2 were prepared by F. P. Sheldon, mill engineer, Providence, R. I., and the contractor was the Flynt Building & Construction Co., Palmer, Mass., which completed its work in eight months. The machinery for the picking, carding, spinning, twisting and slashing was furnished by the Howard & Bullough American Machine Co., Pawtucket, R. I.; spooling, warping and looms by the Draper Company, Hopedale, Mass.; cloth-finishing machinery by the Curtis & Marble Machine Co., Worcester, Mass.; steam boilers (equipped with Hawley down-draft furnaces and Green economizers) of the Continental Scotch marine type by the Holthoff Machinery Co., Milwaukee, Wis., and cross-compound condensing engines by the Filer & Stowell Co., Milwaukee, Wis.

The mills are designed for odd goods covering a wide range and spinning from 5s to 50s yarns. They are under the immediate supervision of William T. Lang, agent, who took charge of the Brookside enterprise ten years ago, when the equipment consisted of 5300 spindles and 176 looms.

Greensboro's Latest Mill.

Site has been purchased for the \$250,000 cotton mill to be built at Greensboro, N. C., by W. L. Young, 1020 Empire Building, Atlanta, Ga., and his associates. The land is three miles west of Greensboro on the main line of the Southern Railway, and the work of construction will not begin for sixty or ninety days. J. E. Sirrine of Greenville, N. C., will be the mill architect and engineer. No further details as to the plant are ready for announcement. As stated in the Manufacturers' Record of August 27, the mill is to be doubled soon after operations have begun with the initial equipment. The product will be special cotton fabrics, but the exact character of same cannot be stated as yet.

Textile Notes.

Blacksburg (S. C.) Spinning and Knitting Mills has resumed operations after installing ten new knitting machines and having overhauled its old equipment.

Messrs. P. H. Hanes, P. H. Hanes, Jr., and William M. Hanes of Winston, N. C., have incorporated the Hanes Knitting Co., with capital stock of \$250,000, of which \$100,000 has been subscribed. No further details are stated.

W. T. Owen, secretary of the Commercial Club, 1115 Noble street, Anniston, Ala., wants addresses of manufacturers of machinery for making cotton towels. It

is presumed that the institution named is endeavoring to locate a towel mill.

Cora Cotton Mills, Kings Mountain, N. C., has amended charter so as to permit the issuance of \$50,000 of preferred stock, bearing 7 per cent. interest, payable semi-annually. Possibly the company contemplates making improvements. There are 5184 spindles in the mill now.

The Loray Mills, Gastonia, N. C., has begun the shipment of 4000 bales of standard sheeting to China. Twenty-six cars will be required to carry this order, and its value is about \$176,000. The company named has established a reputation in the Chinese empire for its product.

Anniston (Ala.) Cordage Co. will purchase additional spinning and cordage machinery for its plant. While this new equipment is being installed the old equipment will be overhauled and rearranged. This company has been operating double time for some months, and finds increased facilities necessary in order to meet the requirements of its trade.

Messrs. Wm. Johnston and E. M. Fitzgerald of Salem, Va., will organize a \$25,000 company to establish a woolen mill and trousers factory at Salem, Va. This enterprise will replace the Holstein Woolen Mills, which was lately destroyed by fire at Salem. The owners of the old plant having decided not to rebuild, the result is the organization of this new company.

Chesterfield Manufacturing Co., Petersburg, Va., has begun the improvements to its mill, recently reported. A dam will be built to develop 250 horse-power and enable the company to discard steam as a motive power. New machinery for manufacturing yarns is to be bought and added to the present spinning equipment, while the looms have been discarded, as stated previously.

The Eatonton Cotton Mills and water-power-electrical plant in connection, owned by the Eatonton Electrical Co., Eatonton, Ga., have been sold by court order. The purchaser is J. W. English, Jr., of Atlanta, Ga., his bid being \$43,500. This sale has to be ratified by the referee, and it is believed that his opinion will be adverse at the price named. The mill has an equipment of 2000 spindles, 100 broad looms, etc.

Another cotton mill will be built at Charlotte, N. C., but particulars regarding the enterprise have not been announced as yet. It is stated that one who is interested in the project said: "The announcement will be read with interest not only in Charlotte, but throughout the milling districts of New England, and it will be of a character to interest textile circles in general. It will be a milling enterprise on a new departure for the South, and will show that the manufacturing interests of this section are branching out on new and diversified lines. It will show further that we are waking up to the fact that we can make anything that can be manufactured out of cotton."

Probably announcements as to details will be made next week.

QUOTATIONS OF COTTON YARNS.

By Buckingham, Paulson & Co., New York, Philadelphia and Chicago,

September 8.

No. 10s-1 and 12s-1 warps.....	17½@18
No. 14s-1 warps.....	18 @18
No. 16s-1 warps.....	18½@19
No. 20s-1 warps.....	19½@20
No. 22s-1 warps.....	20 @18
No. 26s-1 warps.....	21 @18
No. 6s to 10s yarn.....	16½@18
No. 12s-1.....	17 @17½
No. 14s-1.....	18 @18
No. 16s-1.....	19 @18
No. 20s-1.....	19½@20
No. 22s-1.....	20 @18
No. 26s-1.....	21 @18
No. 8s-2 ply soft yarn.....	17½@18
No. 10s-2 ply soft yarn.....	18 @18
No. 8s-2 ply hard.....	17½@18
No. 10s-2 ply hard.....	17½@18
No. 12s-2 ply hard.....	17½@18

No. 14s-2 ply.....	18½@18
No. 16s-2 ply.....	19 @18
No. 20s-2 ply.....	20 @18
No. 24s-2 ply.....	21½@22
No. 26s-2 ply.....	22 @22
No. 30s-2 ply yarn.....	23½@24
No. 40s-2 ply.....	27½@23
No. 8s-3, 4 and 5 ply.....	17½@18
No. 20s-2 ply chain warps.....	20½@21
No. 24s-2 ply chain warps.....	22½@22
No. 26s-2 ply chain warps.....	23 @22
No. 30s-2 ply chain warps.....	24 @22
No. 16s-3 ply hard twist.....	19 @18
No. 20s-3 ply hard twist.....	20½@21
No. 26s-3 ply hard twist.....	22½@22

Market very quiet; prices nominal.

Cottonseed-Oil Notes.

The first lot of cottonseed of the present season was sold last week in Charlotte, N. C., at twenty-one cents per bushel. This seed was purchased for the Southern Cotton Oil Co.

The work of construction on the Hertford Cotton Oil Mills of Hertford, N. C., is being pushed by the manager, J. D. Stewart. The plant will be ready for operation early in October.

The Grant Bros. Co. has been incorporated at Atlanta, Ga., with a capital of \$15,000 to \$100,000. The company will handle and manufacture cottonseed and its products. The incorporators are Peter G. Grant and Walter T. Colquitt of Atlanta, and Daniel Grant of Memphis, Tenn.

The shipments of cottonseed and its products from the port of Savannah, Ga., for the year ending August 31, 1903, were as follows: Cottonseed 12,354,363 pounds, valued at \$121,488; cottonseed oil 1,052,818 gallons, valued at \$421,748, and cottonseed meal 46,613,767 pounds, valued at \$576,529.

Texas oil mills are now fast going into commission, and the following were reported last week: The Martin Oil Mill of Martin, Texas, commenced to crush seed on the 3d inst.; the oil mill at Hallettsville, Texas, opened for the season on the 1st inst., and will run day and night as long as seed lasts.

The following foreign shipments of cottonseed and cottonseed products are reported from the port of Galveston, Texas, for the fiscal year ending August 31, 1903: Cottonseed to the United Kingdom and Continent valued at \$108,376; cottonseed oil to Mexico and Europe 3,282,699 gallons, valued at \$1,155,922, and cottonseed cake and meal to the United Kingdom, Continent and South Africa 355,717,655 pounds, valued at \$4,149,120, against 349,868,231 pounds, valued at \$3,932,138 in 1901-1902.

Representatives of more than fifty cottonseed-oil mills met in Dallas, Texas, on the 3d inst., to consider matters connected with the trade. The principal discussion was over the proposition to organize for co-operative oil-mill insurance. The proposition was endorsed. Addressers were delivered by a number of representative oil men, the principal one being by Oswald Wilson of the National Department of Agriculture on the cotton-raising industry. The appointment of committees and the transaction of other routine business consumed the remainder of the session.

The following are official quotations on cottonseed and cottonseed products as posted at the Cotton Exchange in New Orleans on the 5th inst.: Prime refined oil in barrels, 42½ cents per gallon; off refined in barrels, 38½ cents per gallon; prime crude, loose, nominal per gallon; prime cottonseed cake, \$25.50 per ton of 2240 pounds; off prime cottonseed cake, nominal; prime cottonseed meal, \$25.50 per ton of 2240 pounds; off prime cottonseed meal, nominal; soap stock, 80 cents; linters, per pound, choice, 4½ cents; A, 4 cents; B, 3½ cents; C, 3¼ cents; cottonseed in sacks delivered at New Orleans, per ton of 2000 pounds, \$11; in bulk delivered at New Orleans, per ton of 2000 pounds, \$10.

PHOSPHATES.

Phosphate Markets.

Office Manufacturers' Record,
Baltimore, Md., September 9.

In the local phosphate market the tone is still quiet, with very little buying, while prices are generally steady and the outlook encouraging. Fertilizer manufacturers are well supplied, and receipts from points of production liberal. The phosphate charters reported last week were as follows: Steamer Nymphaea, 1249 tons, from Tampa to Stettin at 16/9, September; steamer Pathfinder, 1800 tons, from Tampa to Baltimore on private terms; ship Dymomene, 1800 tons, Tampa to Melbourne at 21/1, and steamer Inca from Port Inglis to direct port Continent on private terms, September and October. The advices from mining sections in the South continue to show considerable activity in Florida, South Carolina and Tennessee. Shipments from the Florida ports for August have been heavier than usual, and the trend of prices for Florida rock, both domestic and foreign, is firm. The shipments from Tampa for August were very heavy, aggregating 51,595 tons. Transactions in Florida rock are limited, as most shipments are on old contracts. The market in Tennessee is very active, and prices firm, with a stronger tendency, and although foreign exports are good, prominent companies are likely to do a larger domestic trade than usual. In South Carolina the situation is favorable for a better output, and the companies mining are enjoying a good domestic and export demand. Values are nominally steady.

Fertilizer Ingredients.

The ammonite market is quiet, and the demand from the usual sources limited, while prices hold about steady. The stocks in the West are ample for present wants, and packers are firm in their holdings. The Southern demand has not yet set in, which is later than usual. Eastern buyers are busy shipping, and are not in the market to any extent.

The following table represents the prices current at this date:

Sulph. of ammonia (gas), spot	3 10 @ 3 12½
Nitrate of soda, spot Balto.	2 12½ @ 2 15
Blood.....	2 70 @ 2 72½
Azotine (beef).....	2 55 @ 2 57½
Azotine (pork).....	2 55 @ 2 57½
Tankage (concentrated).....	2 45 @ 2 47½
Tankage (8 and 20).....	2 57½ & 10@2 60 & 10
Tankage (7 and 30).....	22 00 @ 22 50
Fish (dry).....	32 50 @ 35 00

Phosphate and Fertilizer Notes.

The shipments of Florida high-grade phosphate rock from the port of Savannah, Ga., for the year ending August 31, 1903, amounted to 179,555 tons, valued at \$1,785,142.

The Century Phosphate Co., a Kentucky corporation, has been chartered, with a capital stock of \$100,000. The headquarters of the company will be at Louisville, Ky.

The shipments of fertilizers from the port of Pensacola, Fla., for the year ending August 31, 1903, aggregated 10,247 tons, valued at \$12,432, and of Tennessee phosphate rock 103,194 tons, valued at \$553,180.

The shipments of phosphate rock from Port Tampa, Fla., in the last two weeks were six in number, two going to France, two to Italy, one to Germany and one to New York. The shipments aggregated 19,160 tons, valued at \$114,960.

The shipments of phosphate rock from the port of Fernandina, Fla., for the month of August amounted to 16,400 tons; shipments previously reported, 63,185 tons—making a general total of 79,585 tons for the eight months ending August 31, 1903.

The Chattahoochee Valley Chemical & Mining Co. of Columbus, Ga., has begun repairs on the old Columbus Fertilizer Co.'s buildings in Lower Girard preparatory to the commencement of business by the company at an early date.

The fall fertilizer shipping season for Nashville, Tenn., has opened, and it is stated that between seventy-five and one hundred cars a day are required to handle the business. Kentucky, Indiana and Southeastern points consume the major portion of the Nashville fertilizers.

The shipments of Peace River phosphate rock from Punta Gorda by the Peace River Phosphate Mining Co. during the month of August aggregated 7785 tons; shipments previously reported, 39,695 tons—making a total of 47,480 tons for the eight months ending August 31, 1903.

It is stated that the mineral rights on some 800 acres of phosphate land about five miles west of Ashwood, Tenn., have been sold to the Mt. Pleasant Phosphate Co. and resold by that company to the Century Phosphate Co. The price paid by the last purchaser is said to have been \$150,000.

Messrs. Murrell & Peterson of Bay City, Fla., it is stated, have discovered what is thought to be an extensive deposit of high-grade phosphate rock on their properties. They are having the property thoroughly prospected by an expert phosphate man, who is well pleased with the progress he has made.

The export lumber and timber trade of the port of Mobile, Ala., for the fiscal year ending August 31, 1903, shows an increase in volume of over 17,000,000 feet. Of this increase, 5,049,804 superficial feet was in hardwoods, which was a feature of the year's business. The total exports of lumber and timber for the past year were 269,176,158 superficial feet, against 251,626,457 superficial feet last year, and the total of the hardwoods movement was 11,285,292 superficial feet, against 6,235,428 feet last year. There was a gain of 1,000,000 feet in the coastwise movement, but a decrease of 7,000,000 feet in foreign exports, the total business being 91,949,778 superficial feet, against 98,182,685 superficial feet last year. The sawn timber exports for the year amounted to 10,511,728 cubic feet, against 8,081,817 cubic feet for the previous season, being an increase of 2,429,911 cubic feet. The total exports of hewn timber for the past year amounted to 1,658,349 cubic feet, against 1,061,627 cubic feet a year ago, an increase of 600,000 cubic feet.

The shipments of lumber and other wood products from the port of Jacksonville, Fla., for the week ending the 4th inst. were as follows: Steamship Apache, for New York, with 300,000 feet of lumber, 7000 ties, 2000 packages naval stores; steamship Iroquois, for New York, with 450,000 feet of lumber, 800 bundles of shingles, 6000 barrels naval stores; schooner Marie F. Cummings, for Philadelphia, with 435,000 feet of lumber; schooner Wellfleet, for Port Antonio, Jamaica, with 447,394 feet of lumber; steamship Comanche, for New York, with 468,500 feet of lumber, 600 sacks fuller's earth, 1900 barrels naval stores; steamship Huron, for Boston, with 500,000 feet of lumber, 1000 packages naval stores, 10,000 ties and 250 packages of fruits.

The Willingham Lumber Co. of Chattanooga has recently made a number of improvements in its saw-mill plant. The company has extended its lumber-yard by the purchase of a piece of ground costing \$15,000 from the Chattanooga Terminal Co. An engine and boiler house has been constructed, and a large dry-kiln house erected with a capacity of several thousand feet of lumber daily.

LUMBER.

[A complete record of new mills and building operations in the South will be found in the Construction Department.]

LUMBER MARKET REVIEWS.**Baltimore.**

Office Manufacturers' Record,

Baltimore, Md., September 9.

The week under review has developed a rather limited volume of business in nearly every avenue of the local lumber market, and the demand showing but little improvement over the previous week. The inquiry from builders, boxmakers and other woodworking concerns is restricted to smaller lots than usual, and as stocks are quite liberal, prices in some cases are easier. Receipts of North Carolina pine continue to increase, and in box grades, with a liberal offering and uncertain demand, the market for these particular grades shows a slight depression. In the general list of values for North Carolina pine, however, prices continue steady, and manufacturers look for a better trade in the early fall months. Cypress, while not in brisk demand, is moving as usual, with prices unchanged. White pine is firm, with a limited inquiry and stocks ample for present wants. Poplar is decidedly easier, with the inquiry light, while the offerings are liberal and the domestic as well as the foreign demand much less decided than that of thirty or sixty days ago. In hardwoods there is a moderate volume of business reported, and with liberal offerings buyers are not disposed to accept present prices at the moment, and are purchasing in small lots to cover present wants. The tone, however, for oak, ash and other woods is steady, and later on a firmer market is expected. The foreign trade in hardwoods is limited, and exporters find their shipping facilities reduced in the absence of steamers which have been sent to other ports. The reports also from Europe show but little improvement, and shippers are not urging business at present.

Brunswick.

[From our own Correspondent.]

Brunswick, Ga., September 7.

The outward movement of all classes of lumber stocks from this section for the month of August, while larger, did not reach that of July. During August Brunswick shipped 17,810,193 superficial feet. The foreign exports were 630,000 feet. At the nearby port of Darien the August movement amounted to 11,531,092, all foreign—England 7,621,992 feet, Scotland 1,611,000 feet and Germany 2,299,000 feet. During the same month the naval-stores movement from Brunswick amounted to, coastwise, 9550 barrels of rosin and 2275 barrels of turpentine; foreign, 24,518 barrels of rosin and 3492 barrels of turpentine, a grand total of 34,468 barrels of rosin and 5767 barrels of turpentine. At Fernandina the naval-stores movement was all foreign, and amounted to 29,543 round barrels of rosin and 18,883 casks of turpentine. The movement so far for the month indicates a heavier volume than that of August. The coastwise freight-rate situation shows no change, but is rather inclined to stiffen. Quotations are now made from Brunswick as a South Atlantic basis to New York with lumber at \$6.25 and railroad crossties 18 to 19 cents. Reports from interior mills state that large orders are being booked, to be filled between October 1 and Christmas.

Pensacola.

[From our own Correspondent.]

Pensacola, Fla., September 7.

During the past week the lumber and timber market has been fairly active, but

business so far this month is less in volume. Pitch-pine timber ranges from 14 to 16 cents for 30-foot averages and over, with sales about $\frac{1}{4}$ c. to $\frac{1}{2}$ c. lower. In lumber and timber mills are all busy, and owing to copious rains recently, the streams are swollen and logging is being carried on a larger scale. There is a good interior demand for the lumber output, and prices are steady. A number of vessels are chartered to load this month, and shippers look for considerable business in September. The fiscal year which closed on the 31st ult. has been one of unusual volume in all wood products, and the general business of the port has been of greater prosperity than any year in the last quarter of a century. The collector of customs reports the entrances and clearances of vessels during the year as follows: There entered at the customhouse during the year 215 sailing vessels of a tonnage of 168,873 tons, and 302 steamers registering 308,355 tons, making a total of 517 vessels with an aggregate tonnage of 477,228. There cleared during the same period 217 sailing vessels and 280 steamers, or a total of 497 vessels, aggregating 616,861 tons. The export trade of the port during the year has been steady and substantial, and in the item of wood products the improvement over other years is encouraging. The exports of sawn timber for the year amounted to 145,249,000 superficial feet, valued at \$1,710,500; hewn timber 339,244 cubic feet, valued at \$46,674; lumber 134,753,000 superficial feet, valued at \$1,909,629; staves 498,681 pieces, valued at \$43,132, and mahogany, oak, walnut and poplar logs valued at \$209,262. Among the steamship lines now in service from this port, the Atlantic & Gulf Steamship Co. operates a line of freight and passenger steamers to Apalachicola, Carrabelle, St. Andrews and Millville, giving this city connection with an entirely new territory. The Gulf Transit Co., which has done a very large trade during the year, operates freight steamers between Liverpool, London, Manchester, Antwerp, Rotterdam, Bremen, Genoa, Venice and other continental ports. The Louisville & Nashville Railway will hereafter control the steamers of the Austro-American Line, and will add that fleet of vessels to its present line. The increased volume of export business of the Louisville & Nashville has rendered it necessary for the company to purchase additional wharf properties and to erect more warehouses, upon which large sums will be expended. The new year is entered upon under the most favorable auspices, and under present conditions the business of the port is expected to show a material increase during the next fiscal year. The value of exports for the last fiscal year was \$13,954,003, and imports reached \$1,987,134.

Mobile.

[From our own Correspondent.]

Mobile, Ala., September 7.

The week under review has developed few changes in the timber market of this port. Sawn timber is still quoted at 17 cents, but few contracts are made by manufacturers at these figures. Holders are generally firm in their views, and exporters are not pressed for stock, having recently made some heavy shipments. Receipts of hewn timber are light, with little or no stocks of any note on the market. Receipts of logs continue light, and the market is quiet. The lumber market is in good shape, and mills are generally busy, while prices continue firm, and manufacturers look for a very heavy fall and winter business. The demand from South America and from Cuba and Central America is brisk, and shipments liberal to those points. There is a good hardwood trade in progress. One concern, the Mo-

bile Lumber Co., is said to have an order for forty cars of hardwoods for Hamburg, Germany. The same company is also making large shipments to Mexico. The lumber and timber trade of the port for the fiscal year ending August 31, 1903, has shown some very favorable features, and while the increase in the volume of business amounts to over 17,000,000 feet, a not very large sum, the margin of profits has been greater. Of this increase, 5,049,864 superficial feet was in hardwoods, and the increase in this branch of the trade may be taken as the feature of the year's business. The total exports of lumber and timber for the past year were 269,176,158 superficial feet, against 251,626,457 superficial feet last year, and the total of the hardwoods movement was 11,285,292 superficial feet, against 6,235,428 feet last year. There was a gain of 1,000,000 feet in the coastwise movement, but a falling off of 7,000,000 feet in the exports foreign, the total lumber business being 91,949,778 superficial feet, against 98,182,685 superficial feet last year. The volume of the sawn timber exports for the year amounted to 10,511,728 cubic feet, against 8,081,817 cubic feet for the previous season, showing an increase in round numbers of 2,500,000 cubic feet. The total exports of hewn timber for the past year amounted to 1,658,349, against 1,061,627 cubic feet the year previous, showing an increase in round numbers of 600,000 cubic feet.

Memphis.

[From our own Correspondent.]

Memphis, Tenn., September 7.

The movement in this section is a fair average one for this season of the year in nearly every branch of the hardwood industry, and while the demand for lumber is not of an urgent character, prominent firms are enjoying a steady trade, and have a fair volume of orders. The new business offering is moderate, and most firms are engaged in filling contracts, which creates considerable trade. There is very little demand from Eastern centers, but from the West there is considerable trade offering. The export trade is slightly improved, and during the early fall a more substantial demand is expected. Reports from all milling sections show an unusual activity among the mills, with a disposition to increase their output while labor is at hand, and before the winter rains set in, restricting to a great degree their operations. The offerings of dry stock at country mills are not much heavier than usual, many mills working on contracts, thus preventing much accumulation of stock, while shipments are made as soon as the lumber is marketable. As to prices of lumber throughout the list, they do not vary materially from those recently reported. Oak, perhaps, shows the most strength, with quarter-sawed and plain sawed red and white oak firm. There is a moderate demand for ash, with stocks scarce and the undertone firm and hardening. The cypress market is quiet, with liberal offerings, and values slightly easier. Poplar shows less strength than formerly, and prices in certain cases are lower. Cottonwood is steady, with a fair inquiry, and for the medium and lower grades there is a better tone.

Lumber Notes.

The planing mill of Messrs. D. W. Roper & Goodwin Co. of Berkley, Va., which was damaged by fire several weeks ago, is nearing completion. The plant will be ready to start up this week.

The first shipment of crossties on the large order recently placed with the Kirby Lumber Co. of Houston, Texas, for the Brownsville Railroad left Orange on the 1st inst. for Corpus Christi. Other barges will follow in rapid succession.

Bozeman & Etheridge's 40-horse-power saw-mill and all the lumber at the mill were destroyed by fire on the 1st inst. The mill was located two miles from TyTy, Ga. There was no insurance.

The Cheraw Door & Sash Co. of Cheraw, S. C., has been incorporated, with a capital of \$20,000. The incorporators are W. F. Stephenson, D. J. Mathewson, William Godfrey and others.

The McKinniss Shingle Co. of Perryville, Ark., has been incorporated, with a capital of \$10,000, to manufacture shingles and lumber, as recently reported. The company will later on install 50-horsepower boiler, 35-horse-power engine, molder, matcher, resaw and edger.

The Valley Saw-Mill at Hot Springs, Ark., operated by Bush, Smith & Moore, was totally destroyed by fire on the 1st inst., together with a large lot of lumber. The firm's loss is \$20,000, and the buildings, owned by R. L. Williams, \$10,000, neither party having any insurance.

The Davis Manufacturing Co. of Mocksville, N. C., was chartered last week, with a capital of \$10,000, to manufacture coffins, tables, desks and all kinds of furniture. The incorporators are F. M. Gallagher and A. T. Grant, Jr., of Mocksville, and T. E. Proctor of Martinsville, Va., and others.

The shipments of lumber and timber from Pensacola for the month of August were as follows: Sawn timber 24,100,000 superficial feet, lumber 6,005,000 superficial feet, hewn timber 14,718 cubic feet, making a total of 31,005,000 superficial feet of lumber and sawn timber and 14,718 cubic feet of hewn timber.

The Lambert-Murray Company of Asheville, N. C., was chartered last week, with \$50,000 capital authorized and \$10,000 subscribed. The company will do a general lumber and woodworking business in Asheville and Buncombe counties. The incorporators are George H. Lambert, E. P. Murray and H. F. Adicks, Jr.

The Chicago-Mississippi Land & Lumber Co., recently reported as incorporated with a capital of \$400,000, has organized at Greenville, Miss., for conducting a lumber business and developing the timber property recently purchased in Mississippi and elsewhere. The company will erect at once a band mill, contracts for which are now being considered.

The following vessels cleared from Port Tampa last week with full cargoes of lumber: Barkentine Peerless, for Havana, Cuba, with 197,000 feet by the Kirkland Lumber Co.; schooner Popi Ramirez, for Irvington, N. Y., with 400,000 feet from Beckwith, Warren & Bro., and schooner Madeline, a cargo for Calbarien, Cuba, from N. E. Gillett.

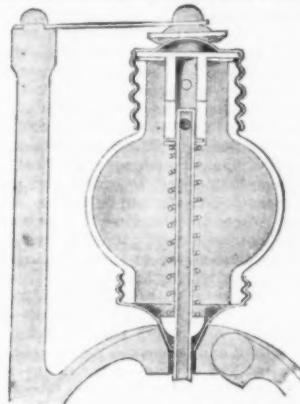
The shipments of lumber from Fernandina, Fla., for the month of August amounted to 10,968,070, and of crossties 27,000, or a total of 12,183,182 feet. The schooner Jennie French Potter is on passage from Portland, Maine, and will load with 35,000 crossties from G. H. Baxter & Co. Four other vessels consigned to J. R. Hill will load in Fernandina during this month, carrying out 4,500,000 feet of lumber.

Capt. C. L. Chesnut, superintendent of the Board of Trade of Savannah, Ga., reports the movement in naval stores for the year ending August 31, 1903, as follows: Receipts of spirits for 1902-1903 are 227,801 barrels, against 302,398 barrels for 1901-1902. Receipts of rosin for 1902-1903 are 781,666 barrels, against 1,005,386 barrels for 1901-1902. In foreign exports for 1902-1903 there were 149,198 barrels of spirits and 450,485 barrels of rosin shipped. Domestic shipments for the same year amounted to 96,924 barrels of spirits and 423,958 barrels of rosin.

MECHANICAL.

A Loose-Pulley Lubricator.

The lubrication of loose pulleys causes much trouble and labor. It is well known that the usual method is for the mechanic to go over the pulleys once a day and see that they are in good condition and that the shafts are well oiled. Generally there is either too much or too little oil used, and consequently the pulleys either

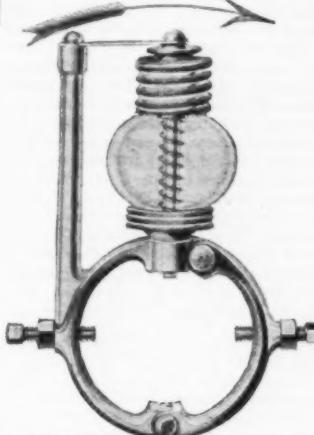


LOOSE-PULLEY LUBRICATOR.

The buildings are constructed after the plans that have been suggested from past experience by expert architects in this kind of work. All the machinery is of the latest designs for manufacturing high-grade product on the most economical basis, and some ingenious devices are used in several of the departments. The electric generating plant for light and power was built and installed by the

nected to either generator. At the bottom of the board there are two 300-ampere, three-pole, single-throw switches for connecting the generators with the bus-bars, and two single-pole circuit-breakers, one in the negative of each of the generator connections. The field regulating rheostats are directly above the main switches and circuit-breakers, while above the rheostats and below the meters are the distributing feeder switches.

Co. of Williamsport, Pa.; sectional shakings grates by the United States Grate Bar Co. of Elizabeth, N. J.; Oscar Beyer of Chicago was the architect for the buildings; Messrs. Charles Kaester & Co. of Chicago were contractors for the conveying apparatus; the De La Vergne Refrigerating Machine Co. of New York for the entire refrigerating system, and the Crocker-Wheeler Co. of Ampere, N. J., for the generators and all electric motors



throw oil over the ceiling and surrounding machinery or run dry. In order to provide equal and satisfactory lubrication for loose pulleys there has been devised the attachment shown by the accompanying illustration. This device is made of best materials and by high-grade workmanship. It is seen from the illustration that a malleable iron ring fits around the hub of the pulley and is fastened by set-screws at each side. This ring is jointed so that it can be placed in position without removing the pulley from the shaft. In the application of this device no extra drilling, tapping or reaming, no disarrangement of pulleys or shafting is necessary; all that is required is an oil hole in the pulley. The oil cup fits into the socket at the lower end and is held in place by the spring clip fitted over the upper end of the cup. The nozzle of the oil cup is placed over the oil hole in the hub of the pulley, with the feed tube extending down into the hole, but free from pressure. When the pulley is at rest the coiled spring presses the lead button against the nozzle of the oiler and throws the ports in the feed tube out of register with the ports in the upper brass cap, so that no oil can flow from the cup, no matter in what position it stops. When running the centrifugal force of the lead button and feed tube compresses the spring and the openings in the tube register with openings in the cup, so that the oil can pass from the body of the cup into the tube. The centrifugal force acting on the oil will prevent it flowing out of the nozzle around the lead button, but the great mass of oil in the body of the cup acts to set up pressure against the smaller amount of oil inside the feed tube and thus forces the oil slowly into the oil hole. The combined area of the ports in the cap are about twice the area of discharge in the feed tube, and makes this action by centrifugal pressure possible. This lubricator can be used in connection with eccentric strap, cross-head or wrist pin, many cases permitting of its application. This is the Gem Loose-Pulley Lubricator, manufactured by the Gem Manufacturing Co., Spruce, near Twenty-third street, Pittsburg, Pa.

A Brewery's Electrical Equipment.

An interesting industrial plant, from a mechanical standpoint, is that of the Orange Brewery Co., at Orange, N. J., which has an annual output of 80,000 barrels of beer.

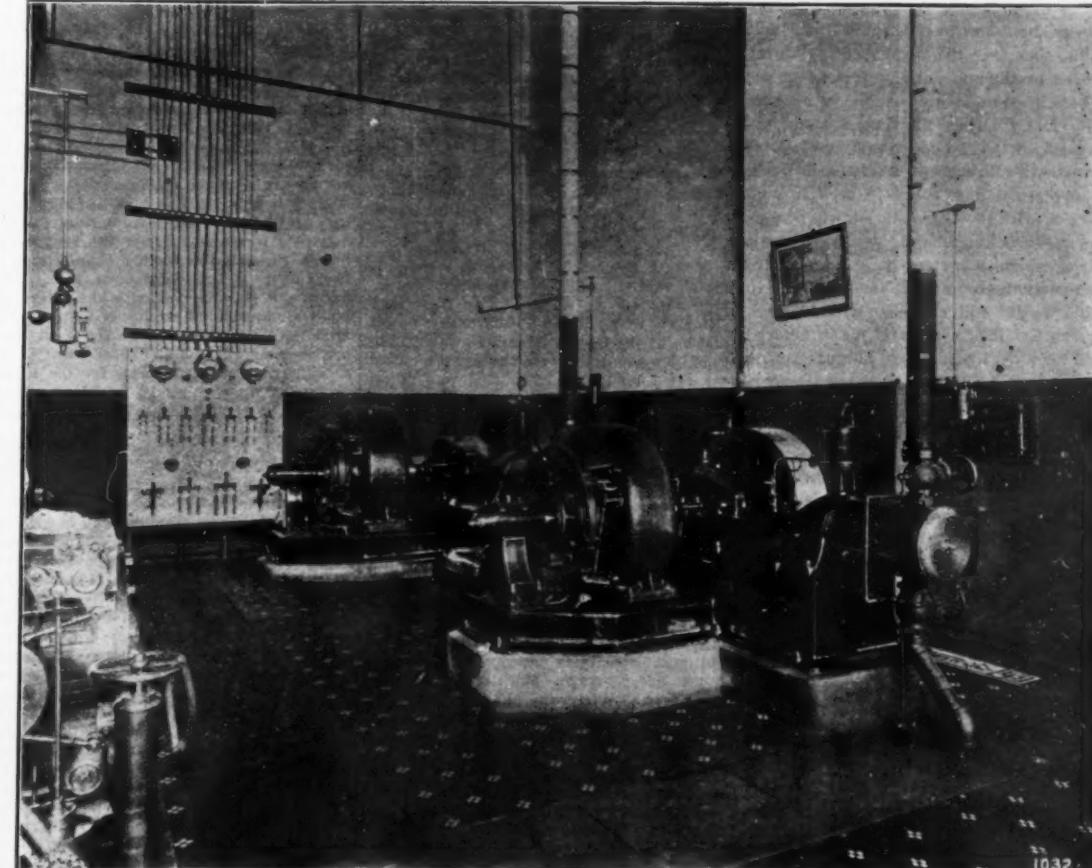
well-known Crocker-Wheeler Co. of Ampere, N. J. It consists of a 60-kilowatt Crocker-Wheeler continuous-current generator, direct-driven by a 12x14-inch Watertown engine, at about 275 revolutions per minute, and a similar, but smaller, set with a 30-kilowatt generator and an 8x12-inch engine running at 300 revolutions per minute. Generated at a pressure of 220 volts, the current is utilized

These from left to right are as follows: A 25-ampere switch controlling the current to the engine and boiler-rooms; a 100-ampere switch for the machine-house and filter-room; a 100-ampere switch for the brew and stock rooms; a 300-ampere switch for all brewhouse motors; a 100-ampere switch for the bottling-house and office; a 100-ampere switch for the wash and freezing rooms, and a 25-ampere switch for the stable and barns,

except those included with machinery under special contracts.

No. 57 Band-Saw Mill.

It required long and continued effort to bring the band mill herewith illustrated to its present state of mechanical perfection. It was patented September 18, 1900, and October 30, 1900, and careful attention is invited to some of its most important points:



CROCKER-WHEELER ELECTRICAL EQUIPMENT IN BREWERY.

for lighting a total of some 250 incandescent lamps and supplying power to thirteen motors representing an aggregate of 123 horse-power.

The switchboard, shown in the accompanying view of the engine-room, contains two ammeters—one for each generator—and a voltmeter, with a double-point switch, by which it may be con-

To keep the water (chilled to about 32 degrees Fahr.) in the fermenting vats in circulation there is a centrifugal pump direct-connected to a Crocker-Wheeler bipolar motor of two horse-power running at 975 revolutions per minute and pumping against a pressure of about eighteen pounds.

Boilers were supplied by the E. Keeler

The great saving in kerf by using a thin blade, an important item when cutting fine lumber.

Solid lower wheels, increasing speed, lessening the circulation of dust and preventing the upper wheel from over-running it, upper wheel having its spokes placed in staggering position, giving it increased solidity.

Improved sensitive straining device, maintaining an always even tension on saw blade and materially prolonging its life.

Patent variable friction feed, simple in construction, powerful and effective in operation; furnished for steam or rack and pinion.

Automatic off-set to carriage, head-blocks fitted with Knight's patent dogs and having automatic receding device, double-acting set works, rapid return to carriage, etc., are a few more of its improved features.

Those interested will be furnished with further particulars by the makers, J. A. Fay & Egan Co., No. 270 to 290 West Front street, Cincinnati, Ohio.

Dust-Collecting Systems.

There are various kinds of manufacturing plants which utilize machinery that produces dust. This dust may be from woodworking machines, pulp and paper equipment, fertilizer machinery, textile machines and many other kinds of mechanical apparatus used in modern industry. The presence of this dust was formerly a great nuisance in and around manufacturers until modern ingenuity produced an equipment for obviating the objectionable conditions. It is not necessary to give a history of the development of dust-collecting systems, but they have grown from small beginnings, as have so many other kinds of up-to-date machines. These dust-collecting systems have been so far perfected that many plants throughout the United States have them installed and are using them with great success. The modern dust-collecting system is applicable to saw and planing mills, woodworking factories of all kinds, polishing and buffing rooms, tumbling barrels, pulp and paper mills, shoe factories, dyehouses, fertilizer works, textile mills, and, in fact, all places where dust-producing machinery is used. The Dixie Dust-Collecting System has earned for itself a most enviable reputation in this branch of mechanical work. The especial dust collector used in connection with the Dixie system will deposit the shavings and dust in the vault without air pressure, allowing the purified air to escape at the top and allowing the fan to work to its full capacity without back pressure. This system is manufactured and installed by the Dixie Manufacturing Co. of Baltimore, Md., mechanical expert in the removal of shavings, dust, lint, odors, etc.

TRADE NOTES.

Sand and Gravel Beach.—Parties who may be seeking a sand and gravel property are advised to address P. O. Box 180, Portsmouth, Va. They can thus obtain particulars concerning a 35-acre sand and gravel beach, which can be developed, located twenty-two miles from Norfolk.

Risdon's Washington Office.—It is announced that Hugh C. Risdon, the well-known industrial promoter, has established an office at 431 Bond Building, Washington, D. C. Mr. Risdon is well known for his work in locating industries and in organizing and financing legitimate enterprises to be established in the South.

Outing for Codd's Employees.—The well-known boilermakers and machinists, the E. J. Codd Company of Baltimore, has planned an outing for its employees. A steamer has been chartered and on September 12 will take the employees to Fairview, on Chesapeake bay, where a delightful day's pleasure is anticipated by the men. Such occasions as these are always pleasant to refer to as indicating the cordial relations between employer and employee in industrial plants.

Zelnicker's Machinery Bulletin.—Buyers of railroad equipment, machinery generally, mill supplies, etc., will be interested to know that the Walter A. Zelnicker Supply Co. of St. Louis issues a daily bulletin of the equipment it has for sale at various cities in the United States. The company at present has a large quantity of 50 and 56 pound relaying

rails for prompt shipment, new and second-hand. Zelnicker branches are located at Chicago, Seattle, Mobile, New Orleans and Houston.

Offers Coal Lands.—Western Kentucky coal lands, much of which is in forest from which the timber can be taken, offer good opportunities for investors and parties desirous of undertaking developments. There are properties in the section which can now be purchased. Particulars concerning these lands, especially a 1000-acre tract, 800 acres being in forest, can be obtained by addressing A. H. Reed, 532 N. Seventh street, Paducah, Ky. No one thinking of buying this character of mineral property can afford to neglect being informed as to the Reed offerings.

Petty Machine Co.—This is a new Southern enterprise, which anticipates meeting with great favor throughout the section tributary to its location at Burlington, N. C. An up-to-date plant for general machine work for some time under construction is now being put in operation prepared for general machine work, overhauling engines and making a specialty of cotton-mill work. J. W. Cates is president; W. L. Cates, secretary, and W. E. Petty, general manager, of the Petty Machine Co. They are prepared to negotiate regarding large or small contracts in their line.

Wrecking Train and Car.—Contractors or others who are likely to want a 15-ton steel-car wrecking train are advised to note that an equipment of this character is offered for sale by the Walter A. Zelnicker Supply Co. The equipment can be obtained at a bargain price. It has been completed only a few weeks, and has not been in use. The Zelnicker lists for September 1 show numerous other offerings in the machinery line. All kinds of woodworking and ironworking machines, contractors' plant, railway equipment and supplies, mill furnishings, etc., are quoted. Company's offices are at 408 N. Fourth street, St. Louis, Mo.

Gem Patented Specialties.—Mills, factories, industrial establishments and the trade are reminded that the Gem Manufacturing Co.'s patented specialties, of which it is the sole manufacturer, and also the general supplies added to the line, are highest grade in both workmanship and material. The company takes pride in the fact that it has established a reputation for quality, combined with promptness and courteous business dealings, which reputation will be jealously guarded. It is prepared to furnish estimates on special articles stamped or drawn from sheet steel or brass, also on dies and mold work. Main offices, Spruce near Thirty-third street, Pittsburgh, Pa.

World's Record in Coal Hoisting.—It is stated that the coal-handling machinery installed by the C. W. Hunt Co., West New Brighton, N. Y., at the Lincoln wharf power station of the Boston (Mass.) Elevated Railroad Co. recently lowered the world's record for rapid unloading. The coal was raised ninety feet above tidewater and delivered to the storage pockets at the rate of 320 tons per hour. The installation follows in general design the standard Hunt steeple tower rig, the moving gear and coal cracker being electrically driven and the hoisting engine direct connected. The overhang of the folding boom is forty feet, and the capacity of the shovel two tons.

Doubled Plant's Capacity.—The Louisville Elevator Co., formerly the Louisville Foundry & Machine Co., Louisville, Ky., has lately been adding new tools to its factory until the capacity is now just double what it was one year ago. Since taking the contract for the thirty-nine hydraulic elevators to be installed in the terminal station in St. Louis, the company has gradually come to the front as an elevator manufacturer. Contracts have been secured for eight electric machines to be installed in Los Angeles, Cal., three of which are to go into the magnificent Chamber of Commerce Building. This speaks highly of Louisville as a manufacturing center, in that these people can successfully compete at such a distance from home with other manufacturers in their own territory.

Contract for 400-Mile Railroad.—The extent of the contracts undertaken by Arthur Koppel of New York city is clearly shown in the latest contract signed. This contract is for building and equipping a narrow-gauge railroad about 400 miles long for the Otvil Mining & Railroad Co. The railroad is to be used in the service of the copper mines in the district Otvil and Tsumeb, in Southwestern Africa. The total cost of building the road is approximately \$1,500,000. The firm of Arthur Koppel has formed a company with several of the first German banks

to build this road, which has to be finished within two and one-half years. Arthur Koppel builds and equips the road complete, including rails, steel ties, rolling stock and all the other equipment. By one of the last steamers fifteen engineers of the firm left Hamburg for Southwestern Africa in order to begin the work.

The Wilkinson Stoker.—John A. Caldwell, general sales manager of the Wilkinson Stoker Co., offices 45 Broadway, New York, relates the following recent sales: Two 200 horse-power, Ridgway Machine Tool Co., Ridgway, Pa.; four 175 horse-power, Reading Water-Works, Reading, Pa. (third order); ten 375 horse-power, Pittsburgh Plate Glass Co. (replacing another of similar appearance); three 350 horse-power, Chamber of Commerce Building, Rochester, N. Y.; two 300 horse-power, New Willard's Hotel, Washington, D. C.—all of above for use with soft coal; thirteen 300 horse-power, Federal Sugar Refining Co., Yonkers, N. Y.; two 300 horse-power, Schwarzschild & Sulzberger, New York; four 300 horse-power, the Belleville Stratford Hotel, Philadelphia, Pa.; ten 200 horse-power, the American Tube & Stamping Co., Bridgeport, Conn.—all of the latter for use with anthracite buckwheat coal.

Enlarging Dow Wire Works.—Increased demands for its product makes it necessary that the Dow Wire Works Co. of Louisville, Ky., enlarge its already extensive plant. A factory located on three acres of ground, with railroad switch, in the city limits, has been secured, and facilities will be largely increased, since the company will now have about 75,000 square feet of floor space. Two large boilers and engines have been secured, also shafting and heating apparatus, which are already in place, and the company expects to have its machinery moved into new quarters within sixty days. The Dow Wire Works Co. is one of the largest industrial plants of its kind in the South, and it is handling a large trade in that section, besides sending a lot of its product to other territory. It makes artistic steel and bronze work for banks, elevator cabs and enclosures, ornamental iron drills, wire office railings, wickets, gates, etc.

Carolina Fire-Brick Works.—This plant is one of the representative industries of its character in the South, and for some years has been supplying large quantities of high-grade fire-brick in all standard sizes, fire clay and glass sand, special shapes of any design, etc. The Carolina Fire-Brick Co. finds that the urgent demand for its product necessitates increased facilities, and improvements are now being made to the plant. New machinery is being installed with daily capacity of 60,000 bricks, and there is being erected a hot-air waste-heat dryer, the heat to be drawn through the cooling chambers of a 19-chamber Haigh continuous kiln. The dryer will be equipped with the latest devices for economical drying of material. It is claimed that this will be the most thoroughly-equipped and up-to-date plant of its kind in the Southern States for the manufacture of fire-clay goods, machine or hand made. The plant is located at Killian, S. C.

To Whom It May Concern.—The following letter is interesting: "In December of 1901 I gave the Philip Carey Manufacturing Co. an order to furnish and apply its 85 per cent. magnesia sectional covering and cement on my live steam and return pipes and connections, including two 125-horse-power boilers, connected with three Ames 30-horse-power engines, one 30-horse-power Westinghouse engine, two Snow compound elevator pumps, size 12x18x8x12; one boiler-feed pump, size 6x16; one house-service pump 6x4x6, one drinking-water pump 3½x2½, and one well pump 4x3½x5. The total cost of material and labor for covering on this work was \$36,50. In exactly one year from completion of covering work I made a reduction in my fuel bill of \$1429.43, or about \$119.12 per month, besides reducing the temperature of my engine room from 130° to 98° in the summer time. This statement can be verified by examination of our books, which will be gladly shown to any of my brother engineers. Very truly, The White Fireproof Office Building, corner E. A. Carter, chief engineer." Philip Carey Manufacturing Co. is at Lockport, N. Y.

Wesco Supply Co.—This company announces that it has acquired and will continue the supply business of the Western Electrical Supply Co., St. Louis, Mo. R. V. Scudder is vice-president and general manager of the new enterprise. The Western Electrical Supply Co. states that the rapid growth of its business made it advisable to increase the cash capital and divide said business into two parts. That portion relating to electrical supplies has been sold to the

Wesco Supply Co., as above stated, which will be under the personal management of Mr. Scudder. The other branch—the building of electric-light plants and electric railways—will be retained by the Western Company, which now has on hand contracts in this department amounting to nearly \$1,000,000. Hereafter the Western Company will restrict itself to this branch. H. K. Gilman will continue to be the manager, with offices in Chemical Building, St. Louis, and he will also retain an interest in and be a director of the Wesco organization. The Western Electrical Supply Co. expects to increase its capital to \$300,000 soon and discount all future purchases.

Electric Power in Candy Factory.—The extensive factory of the Loose-Wiley Cracker & Candy Co. of Kansas City has been completed, and its electrical equipment is an interesting installation. A modern mill building six stories high, 123x184 feet, is used. The power equipment embraces one 75-kilowatt and one 100-kilowatt Westinghouse generator connected to straight-line high-speed engines. There are also number of Westinghouse motors in position. The current supplied to these motors at 110 volts is conveyed from the switchboard by rubber-covered cables; the power is economically distributed, a separate motor being provided for each department. All motors are suspended from the ceiling and connected to the machinery by belts. The switchboard apparatus is also of Westinghouse manufacture. The connections between switchboard and generators are such as to allow the operation of either generator for power or light exclusively, or both generators may be used for light and power at the same time. The boiler plant consists of six P. Delany & Co. tubular boilers, each 60 inches in diameter by 16 feet long, equipped with Roney mechanical stokers. All of the apparatus in the plant was installed by the Reed-Squires Electric Co. of Kansas City.

American Granite Brick Co.—This corporation has recently been chartered and secured control of a Southern territory for the Hunneke's system of manufacturing sand-lime building bricks. The company's territory covers the District of Columbia, Virginia, South Carolina, Georgia, Florida, the greater part of North Carolina, much of Alabama and parts of Pennsylvania and Maryland. This valuable territory abounds in sand of the very best quality and in suitable material for making lime. These two are the chief materials requisite for making unexcellled brick of natural bright and light colors. The superior advantages of manufacturing sand-lime building brick have frequently been referred to in the press during the past several years. Manufacturing by the new system is rapidly becoming an important industry in this country, and doubtless the American Granite Brick Co. will through its efforts give great impetus to the progress of the Hunneke's system. E. C. Wood is president of the company; John P. Martin, vice-president and general manager, and John P. Martin, Jr., secretary. Offices in the Home Life Building, corner Fifteenth and G streets N. W., Washington, D. C. New York office at 114 Liberty street. This company is capitalized at \$50,000.

Anti-Friction Journal Bearings.—Those who desire to dispense with oil or lubricant in all journal bearings will be interested in having their attention called to an anti-friction journal bearing now being introduced. The object of this invention is to produce improvements in that class of journal bearings in which friction is reduced to a minimum through the employment of rolling members between a journal or axle and its box, wherein provision is made for the practical elimination of friction between all the bearing parts of the device and the varying conditions in use, whereby all injurious heating by friction is obviated without the use of oil or other lubricants. The invention is applicable to bearing generally, whether the box be stationary and the journal rotative, the axle be fixed and the box rotative, or both be rotative. The device mentioned is the Stickel Anti-Friction Journal Bearing, manufactured by the Stickel Machine Co., N. McKusick, secretary, Williamsport, Pa. Some of the strongest possible statements concerning the efficiency of the bearing as accomplishing what it aims to do have been given to the makers. One instance may be quoted. An operator of a mortise machine in a planing mill writes: "Connected with said machine there is a pulley equipped with your bearing running at a speed of 1000 revolutions per minute during working hours. It has been three months since that pulley was attached to my machine, and during this time no oil or other lubricant has been used upon any part of the pulley or its bearing." Write the company for further details.

An Co. Inc. Am pure Duk Ta Manaized ment and rect S. W. will build

Bat Croun incorp M. Co preside user

Clan thracely minces

Denting Com \$30,000. W. Raw Graw,

Eng for in dress?

Fort Archer corpora structure Archer

Harr

CONSTRUCTION DEPARTMENT.

TO OUR READERS!

In order to understand and follow up properly the Construction Department items, please bear in mind the following statements:

EXPLANATORY.

The Manufacturers' Record seeks to verify every item reported in its Construction Department by a full investigation and complete correspondence with everyone interested. But it is often impossible to do this before the item must be printed, or else lose its value as news. In such cases the statements are always made as "rumored" or "reported," and not as positive items of news. If our readers will note these points they will see the necessity of the discrimination, and they will avoid accepting as a certainty matters that we explicitly state are "reports" or "rumors" only. We are always glad to have our attention called to any errors that may occur.

*Means machinery, proposals or supplies are wanted, particulars of which will be found under head of "Machinery, Proposals and Supplies Wanted."

In correspondence relating to matters reported in this paper, it will be of advantage to all concerned if it is stated that the information was gained from the Manufacturers' Record.

ADDRESS FULLY.

To insure prompt delivery of communications about items reported in these columns, the name of one or more incorporators of a newly incorporated enterprise should be shown on the letter addressed to that town, or to the town of the individual sought, as may be shown in the item, as sometimes a communication merely addressed in the corporate or official name of a newly established company or enterprise cannot be delivered by the postmaster. This will help to insure prompt delivery of your communication, although it is inevitable that some failures on the part of the postal authorities to deliver mail to new concerns will occur.

WRITE DIRECTLY.

It is suggested to advertisers and readers that in communicating with individuals and firms reported in these columns a letter written specifically about the matter reported is likely to receive quicker and surer attention than a mere circular.

ALABAMA.

Anniston—Cotton Mill.—Anniston Cordage Co. will install additional spinning and cording machinery in its plant.

Anniston—Brick Plant.—Colonel Locke has purchased, will improve and operate the Duke brick works.

Talladega—Furniture Factory, etc.—Watts Manufacturing Co., recently reported organized with capital of \$10,000, is an enlargement of M. E. Watts & Bro. of Meadow, Ala., and Watts Bros. Manufacturing Co. is correct title. M. E. Watts, Thos. G. Watts, R. S. West of Meadow are the directors. They will erect a plant for producing furniture, building materials, general woodwork, etc.*

Tuscaloosa—Cotton Compress.—American Cotton Co. will rebuild its roundlap-bale plant reported burned at loss of \$11,000.

ARKANSAS.

Batesville—Furniture Company.—Cook Crouch Furniture & Hardware Co. has been incorporated, with capital of \$25,000, by John M. Cook, R. A. Dowdy and A. L. Crouch, president, vice-president and secretary-treasurer, respectively.

Clarksville—Coal Mines.—Clarksville Anthracite Coal Co. has been incorporated, as lately reported, for development of coal mines. J. O. Blackard is engineer in charge, and Joe James, architect.*

Dunning—Coal Mines.—Ozark Coal & Mining Co. has been incorporated, with capital of \$30,000, and M. B. Cornatzer, president; Geo. W. Russell, vice-president, and D. M. McGraw, secretary-treasurer.

England—Water-works.—City is preparing for installation of water-works plant. Address T. J. Hudson.

Fort Smith—Construction Company.—Archer-Foster Construction Co. has been incorporated, with capital of \$10,000, for construction of railroads, bridges, etc., by W. J. Archer, George S. Foster and J. K. Tunnah.

Harrisburg—Mercantile.—Chartered: G. T.

Garvey Company, with capital of \$16,000, by G. T. Garvey and others.

Jacksonport—Improvement Company.—Jacksonport Improvement Co. has been incorporated, with capital of \$25,000, and L. Minor, president; R. W. Anderson, vice-president; E. A. Shaver, secretary, and G. I. Grant, treasurer.

Little Rock—Heating Plant.—Little Rock Heating Co., which will erect and operate the hot-water heating plant under franchise granted by city to Arthur Neill and Oscar Davis, has been organized, with capital of \$250,000, of which \$60,000 has been subscribed. Wm. G. Andrews of Clinton, Iowa, is president; T. L. Cox, vice-president; Arthur Neill, secretary, and Oscar Davis, treasurer. Engineer W. H. Schott of Chicago, Ill., will superintend construction of plant.

Mineral Springs—Stave and Lumber Company.—Lanier Stave & Lumber Co. has been incorporated, with capital of \$50,000, and W. F. Harrison, president; T. J. Dodd, vice-president; G. H. Whitfield, secretary, and J. H. Whitfield, treasurer.

Mt. Hersey—Zinc Mines.—Mt. Hersey Mining Co. has been chartered, as recently reported, for development of 500 acres of zinc lands near Mt. Hersey. No contracts have been awarded nor machinery purchased. Address J. R. Fleming, secretary, Sinnet, O. T. Company's main office in Cleveland, O. T.

Paragould—Educational.—Chartered: Wyse College, with capital of \$25,000, and Richard Jackson, president; W. C. Hasty, vice-president, and M. F. Collier, secretary.

Perryville—Lumber Mill.—McKinniss Shingle Co. has been incorporated, with capital of \$10,000, for manufacture of shingles and lumber, as recently reported, and will later install 50-horse-power boiler, 35-horse-power engine, molder, matcher, resaw and edger.

Pine Bluff—Hardware Company.—McGaughey Hardware Co. has increased capital from \$10,000 to \$50,000.

Pine Bluff—Ice and Coal Company.—Consumers' Ice & Coal Co. has been incorporated, with capital of \$100,000, and J. F. Rutherford, president; W. D. Hearn, treasurer, and V. O. Alexander, secretary.

Pulaski—Sewerage System.—Chris Ledwige, Maxwell Coffin, H. F. Auten and F. B. Hollenberg have incorporated Pulaski Sewerage Co., with capital stock of \$10,000, to construct and maintain sewers in the Pulaski Heights district.

Texarkana—Lumber Mill.—Iowa Lumber Co., recently reported incorporated, has mill equipped and in operation; capacity 20,000 to 30,000 feet per day.

FLORIDA.

Bay City—Saw-mill.—W. R. Peterson of the O'Brien Lumber Co. of O'Brien, Fla., is erecting saw-mill at Bay City.

Bay City—Phosphate Mines.—G. B. Murrell has discovered and will develop phosphate on his property near Bay City.

Irvine—Cannery.—Hall Bros. will erect cannery.

Jacksonville—Saw-mills.—Chartered: C. J. McGehee & Co., for operating saw-mills, etc. The capital stock is \$10,000, and the incorporators are C. J. McGehee, C. A. Anderson, J. F. McClellan and J. L. Jones.

Manatee County—Timber-land Development.—Southern States Land & Timber Co. of New Orleans, La., has purchased 235,000 acres of timber land in Manatee county, and will erect a number of mills for developing the property.

Martel—Lumber Mills.—Martel Lumber Co., lately reported incorporated with capital of \$25,000 for manufacture of lumber, will establish lumber mill with capacity of 30,000 feet per day.

Pensacola—Land Improvement.—Pensacola Land & Improvement Co. will be incorporated, with capital of \$50,000, and privilege of increasing to \$100,000. M. C. Brent will be president; George W. Wright, vice-president, and Thomas C. Watson, secretary.

Tallahassee—Lumber Mills, Naval Stores, etc.—Jasper Manufacturing Co. has been incorporated, with capital of \$20,000, for manufacture of lumber and to deal in naval stores, etc., by J. R. Tuton, C. W. Smith and H. M. Tuton.

GEORGIA.

Americus—Laundry.—E. L. Hollis, No. 14 Planters' Bank, will establish steam laundry.*

Athens—Road Improvement.—Clarke coun-

ty has voted issue of \$100,000 of bonds for road improvements, previously reported. Address The Mayor.

Athens—Sewerage System.—City has commenced work on construction of its proposed \$20,000 sewerage system, previously reported. Address The Mayor.

Atlanta—Clothing Factory.—Hygiene Clothing Co. has been incorporated, with capital of \$1000, by W. H. Wiggs and L. S. Biggar, for manufacture of clothing and underwear.

Atlanta—Cotton-oil Mill.—Grant Bros. Co. has been incorporated, with capital of from \$15,000 to \$100,000, for manufacture of cotton-seed and cottonseed products, by Peter G. Grant and Walter T. Colquitt of Atlanta, Daniel Grant of Memphis, Tenn., and others.

Atlanta—Sewerage.—Councilman C. S. Winn, chairman sewer committee, has recommended award of contracts for extension of city sewers, involving an expenditure of \$100,000. Main contract will be awarded Atlanta Construction Co.

Augusta—Lumber Plant.—Jesse Thomson of Swainsboro, Ga., has purchased plant of Youngblood Lumber Co. and will reorganize company and operate the plant.

Carrollton—Telephone Company.—Gainesboro Telephone Co. has increased its capital stock to \$150,000 and will expend \$100,000 on improvements and extensions.

Cartersville—Planing Mill.—Strickland Bros. contemplate erection of planing mill.*

Columbus—Bottling Plant.—Incorporated: Columbus Coca-Cola Bottling Works, by Columbus Roberts and E. F. Roberts of Columbus, and George C. Roberts, John E. Cobb and George S. Cobb of Alabama, the capital stock to be \$20,000, with privilege of increasing to \$50,000.

Gainesville—Dolomite Mines.—C. D. Schaffer is organizing a company to develop dolomite mines.

Macon—Telephone Extension.—Southern Bell Telephone Co. will extend its line to Cochran, Hawkinsville and Eastman from Macon.

Savannah—Turpentine-box Factory.—Stock company will be organized to establish factory for manufacture of a patent turpentine box invented by Robert L. Gaylord of Clyo, Ga.

Thomson—Fertilizer Company.—Chartered: McDuffie Oil & Fertilizer Co.

Thomson—Mercantile.—Chartered: Thomson Mercantile Co.

Waycross—Pants Factory.—Jones Pants Manufacturing Co. has issued \$5000 of additional stock for purpose of making necessary improvements.

KENTUCKY.

Catlettsburg—Coal Mines.—Norton Branch Coal Co. has been incorporated, with capital of \$2300, by George W. Mitchell, J. D. Musters, F. E. May and others.

Catlettsburg—Oil and Gas Wells.—Pritchard Oil & Gas Co. has been incorporated, with capital of \$10,000, by M. C. Watson of Louisa, W. L. Watson of Ashland and Kenneth Pritchard of Denton.

Cloverport—Machine Shops and Foundry.—Madison L. Christian of Louisville, Ky., has, with others, organized the Christian Machine Shops and Foundry, and will establish plant at Cloverport.

Henderson—Wagon Works.—Coquillard Wagon Works has been removed from South Bend, Ind., to Henderson.

Henderson—Flour Mill.—Kentucky Milling Co. will rebuild its flour mill burned lately and reported to be rebuilt. New company will be organized with capital of \$50,000.*

Hopkinsville—Manufacturing.—Peerless Manufacturing Co. has been incorporated, with capital of \$10,000, for manufacturing machinery, tools and other patented articles.

Louisville—Mercantile.—Chartered: F. W. Maury & Co., with capital of \$15,000, by F. W. Maury and others.

Louisville—Wire Works.—Dow Wire Works Co. has secured larger factory building and installed additional machinery for increasing capacity.

Louisville—Oil and Gas Company.—Brooksville Oil & Gas Co. has increased capital from \$3000 to \$7000.

Maysville—Coal Mines, Coke Ovens, etc.—Great Northern Coal & Coke Co. has been organized, with capital stock of \$10,000, by Senator J. N. Camden and Spragg Camden of Parkersburg, W. Va.; P. L. Kimberly of Sharon, Pa.; F. A. Dinley and Rob-

ert Newton of Chicago, Ill.; George C. Howe, Duluth, Minn., and J. C. Mays of Paintsville, Ky. Company has concluded deal by which it acquired 400,000 acres of coal lands near Maysville, and will inaugurate extensive developments, making a number of openings, constructing railroad distance of ninety miles and building coke ovens. At Maysville will be erected two immense steel coal tipplers equipped with latest machinery and devices for unloading from cars to barges; several mining companies for operating the different openings, transportation company and selling company will be organized, each a separate organization with different officers.

Cincinnati will be headquarters of the selling company, and offices of the parent company, the Great Northern Coal & Coke Co. will be in New York, but for present Senator J. N. Camden, Parkersburg, W. Va., can give particulars. Referring to the above, Senator Camden wires the Manufacturers' Record as follows: "We have recently purchased a field of about 350,000 acres on the waters of the Big Sandy in Eastern Kentucky of the finest fuel and coking coal in the United States, but we have no plans for its development at present."

Morgantown—Electric-light Plant and Water-works.—J. M. Carson has franchise for erection of electric-light plant and construction of system of water-works.

Owensboro—Foundry.—Southern Foundry Co. will rebuild foundry recently burned at loss of \$10,000.

Princeton—Oil and Gas Wells.—E. Young Oil & Gas Co. has been incorporated, with capital of \$100,000, by E. Young, John C. Gates and M. J. Groom, all of Princeton, for development of oil, gas and mineral lands.

Winchester—Lumber Plant.—Chartered: Loveland-Garrett Company, capitalized at \$50,000, which has purchased and will develop 5000 acres of timber land. R. P. Brodhead of Wilkesbarre, Pa.; C. H. Loveland of Mt. Sterling, Ky., and H. G. Garrett of Winchester, Ky., are the incorporators.

LOUISIANA.

Clinton—Lumber Plant.—Clinton Lumber Co., Ltd., has been chartered, acquired pine timber lands, and will build saw and planing mills; motive power of mill will be electricity. F. J. Harris is president; D. J. Anders, secretary, and L. M. McKnight, manager.

Jeanerette—Lumber Mill.—Salt Water Lumber Co., Limited, has been incorporated with capital of \$100,000 and H. Patout, president; J. B. Brown, vice-president, and Willis Patout, secretary-treasurer.

New Orleans—Canal.—Alabama Coal & Transportation Co., with headquarters in New York, has leased and will operate the Lake Borgne canal. The Alabama Company, which controls large coal mines in Alabama, proposes to ship its coal to New Orleans through the canal, and will open offices in New Orleans through which the affairs of the canal will be controlled.

New Orleans—Oil Refinery.—National Oil Works & Mill Supply Co., P. A. Cooney, manager, has purchased 100 acres of land as site and has completed all arrangements for establishment of its proposed oil refinery, which will have capacity of 500 barrels per day.

New Orleans—Trunk Factory.—New Orleans Trunk Co., Limited, H. Davis, proprietor, will install additional machinery for increasing capacity of his trunk factory.

Rayne—Rice Mill.—Jefferson D. Marks of Crowley, La., and associates have purchased the Arcadia Rice Mill at Rayne, as recently reported, and will operate as the Ida Rice Mill. Ed Burgess is engineer in charge; J. A. Pitty, Crowley, architect; size of building 160x30 feet, and capital to be invested \$50,000.*

Whitecastle—Water-works.—City will issue \$80,000 of bonds for construction of system of water-works. Address The Mayor.

MARYLAND.

Baltimore—Real Estate.—C. E. Spalding Co. has been incorporated, with capital of \$10,000, by Chas. E. Spalding, Robert K. Keasey, James McEvoy, Jr., and others.

Baltimore—Brick Plant.—Representatives of the Montello Brick Co. of Reading, Pa., are investigating with view to establishing \$200,000 brick plant at Baltimore.

Baltimore—Gas Plant.—Joseph Schreiber, president of the Highlandtown Gaslight Co., and reported recently as having been granted franchise for construction of gas plant at Highlandtown, has awarded contract for

MANUFACTURERS' RECORD.

[September 10, 1903.]

erection of same to Frank Long; buildings will include retort houses, office buildings, engine houses and other structures; large gasometers will also be constructed and gas mains laid. Entire cost of plant will be \$900,000.

Cockeysville — Flour Mill.—Holland & O'Neal will rebuild flour mill reported burned; building will be 40x50 feet and capacity will be seventy-five barrels.*

Mount Savage—Coal Mine.—Edgar W. Day, Wm. B. Farlinger, Joseph A. McGaghey, Alfred Stevens and Clinton E. Vansant, all of Baltimore, Md., have incorporated the Mount Union Big Vein Coal Co. for development of coal property near Mount Savage.

Washington, D. C.—Brick Works.—American Granite Brick Co., recently chartered with capital stock of \$500,000, controls a large Southern territory for the Huennekes system of manufacturing sand-lime building bricks. Preparations are being made to build a large plant at Washington to be followed by others at Baltimore, Norfolk, Richmond, Raleigh, Charleston, Atlanta, Savannah, Montgomery, Mobile, Jacksonville and other Southern cities. E. C. Wood is president; John P. Martin, vice-president and general manager, and John P. Martin, Jr., secretary. Main offices at Nos. 2125 Home Life Building, Fifteenth and G streets N. W.

MISSISSIPPI.

Centerville—Soap Factory.—L. B. Robinson is organizing \$25,000 company for establishment of soap factory.

Ellisville—Water-works.—City voted issuance of \$20,000 of bonds for construction of water-works recently reported. Address The Mayor.

Greenville — Timber-land Development, Saw-mill, etc.—Chicago-Mississippi Land & Lumber Co., reported recently as incorporated with capital stock of \$400,000, has organized for conducting lumber business and developing the property which it has purchased in the State of Mississippi and elsewhere. Company will erect at once a band mill on the property, contracts for which are now being considered. Address F. B. McMillen, treasurer, 123-125 La Salle street, Chicago, Ill.

Heidelberg—Cotton Gin.—Company reported recently to be organized by K. C. Hall and others for erection of cotton gin has been incorporated as the Heidelberg Ginnery & Warehouse Co., with capital of \$300,000. Another other incorporators are T. M. Heidelberg, R. P. Clayton and others. E. M. Lyon of Heidelberg is engineer; R. Archer, Laurel, Miss., architect. Capacity will be forty bales of cotton per day.

Jackson—Electric Plant.—Capital Light & Power Co. is increasing the capital stock from \$25,000 to \$50,000, having concluded to establish a larger plant than originally contemplated. Contract for erecting the powerhouse was reported in July as awarded to J. C. Lamden.

Magnolia—Water-works.—City will vote October 6 on issue of the \$25,000 of bonds for construction of water-works previously mentioned. Address The Mayor.

MISSOURI.

Chillicothe—Box Factory.—Chillicothe Box Manufacturing Co. has been incorporated, with capital of \$25,000, by N. E. Kidder, Frank Adams, Glen E. David and others.

Jefferson City—Paving and Sewerage.—The city will construct sewers in three districts, mains for which are built and 8 to 12-inch pipe will be used. Surveys and plans are now being made. City will also pave about 15,000 square yards with macadam, along which will be about 10,000 linear feet of granitoid curb and gutter, and about 37,000 square feet of granitoid sidewalk. Part of this is open for bids, and the rest will be as soon as the grading is done. Eight blocks of business district, comprising about 24,000 square yards, will be paved this fall with brick or asphalt, as decided by committee to meet this week. J. C. Herring is city engineer.*

Kansas City—Advertising Company.—Flash Advertising Co. has been incorporated, with capital of \$50,000, by H. A. De Forrest, G. H. Deshon, E. E. Evans and others.

Kansas City—Bridge.—Chicago Great Western Railroad Co. has awarded contracts for construction of its proposed \$300,000 bridge over Kaw river. Contract for piers has been awarded Kahmann & McMurray of Kansas City, and steelwork will be done by Pittsburgh (Pa.) Bridge Co.

Kennett—Drainage and Improvement Company.—St. Francis Basin Improvement Association has been organized for the purpose of securing the drainage and improvement of the nineteen counties of Arkansas and Missouri penetrated by the St. Francis river and

tributaries. John A. Fox of Mississippi county, Arkansas, is temporary secretary.

Poplar Bluff—Typewriter Factory.—Company reported recently to be organized for manufacturing new machine to be known as the addograph has incorporated as the Adding Typewriter Co. and will establish plant at once. Superintendent who will have charge of plant is Sam G. Dorman, and may be addressed Room 55, Gay Building, St. Louis, Mo.

St. Louis—Agricultural-implement Factory. Waters-Barber-Trecoo Company has been incorporated, with capital of \$10,000, for manufacture of farming implements, wagons, etc., by William Waters, Cleerre Barber, W. H. Trecoo and others.

St. Louis—Realty Company.—Victor Realty Co. has been incorporated, with capital of \$5000, by S. J. Russack, Chas. Wittenberg, Samuel Gross and others.

St. Louis—Milling.—Chartered: Saxony Mills, with capital of \$100,000, for conducting general milling business, by R. H. Leonhardt, J. F. Schuricht, A. T. Leonhardt and others.

St. Louis—Resort.—Montesano Health Resort Co. has been incorporated, with capital stock of \$300,000, by William H. Thorwegen, Noel Poepping, O. F. Doering, H. G. Oheim and M. T. Chestnut.

St. Louis—Investment Company.—Hoffman Investment Co. has been incorporated, with capital of \$80,000, by G. A. Hoffman, H. C. Kelly, William Gerdine and others, for dealing in real estate, etc.

St. Louis—Gate Company.—International Starting Gate Co. has been chartered, with capital of \$5000, by F. A. Siebert, A. H. Bibb, E. S. Waer and others.

St. Louis—Hardware Specialty Company.—National Hardware Specialty Co. has been incorporated, with capital of \$20,000, by C. R. Zschau, H. R. Hetlage, R. A. Jones and others.

St. Louis—Sewerage.—Parker-Washington Company has contract at \$80,000 for constructing the Blackstone district sewers. M. A. Hogan has contract at \$5000 for North Market street sewer.

NORTH CAROLINA.

Asheville—Lumber Mills.—Incorporated: Lambert-Murray Company, to operate saw-mills, shingle mills, dry-kilns, etc. The capital stock authorized is \$50,000. George H. Lambert of Asheville, E. P. Murray of Henderson, N. C., and H. F. Addicks, Jr., of Asheville are the incorporators.

Benson—Telephone Company.—Benson Telephone Co. has been incorporated, with capital of \$10,000, by R. F. Smith, W. H. Smith, G. W. Cavanaugh, J. W. Benson and others.

Burlington—Machine Works.—The Petty Machine Co. is putting in operation its new plant, under construction for some time, for general machine-working business; J. W. Cates, president; W. L. Cates, secretary; W. E. Petty, general manager.

Burlington—Gold Mine.—W. G. Teague is developing gold-bearing properties near Burlington.

Greensboro—Cotton Mill.—Site has been purchased for the \$250,000 cotton mill lately reported to be built by W. I. Young, 1020 Empire Building, Atlanta, Ga., and associates. Construction work will not be begun for sixty or ninety days. J. E. Shrine of Greenville, S. C., will be mill architect and engineer. No further details as to plant are ready for announcement.

Inez—Mattress Factory.—J. H. Marshall will establish a mattress factory.*

Lexington—Paper-quilt Factory.—National Fiber & Paper Quilt Co. has been organized by D. W. Bagley, D. F. Conrad and J. W. Crowell, for the manufacture of paper bed quilts.

Mocksville—Woodworking Factory.—Davie Manufacturing Co. has been incorporated, with capital of \$10,000, for manufacture of furniture, desks, tables, coffins, etc., by C. M. Gallaher and A. T. Grant, Jr., of Mocksville, T. E. Proctor of Martinsville, Va., and others.

Raleigh—Telephone Extension.—Raleigh Telephone Co. will extend its system to Lillington.

Raleigh—Beverage Factory.—The Cel-i-ko Company has been incorporated, with capital of \$20,000, and privilege of increasing to \$50,000, for manufacture of non-alcoholic beverages. W. W. Mills, W. Birch Douglass, Thos. B. Womack, Wm. Hayes and W. C. Douglass are the incorporators.

Winston—Knitting Mill.—P. H. Hanes, P. H. Hanes, Jr., and Wm. M. Hanes have incorporated the P. H. Hanes Knitting Co., with capital stock of \$250,000, to operate knitting mills.

SOUTH CAROLINA.

Anderson—Live-stock Company.—Chartered: Fretwell-Hanks Live-Stock Co., with capital of \$20,000, by J. J. Fretwell, Monroe Hanks and others.

Cheraw—Packery.—Standard Fruit Packing Co. has been incorporated, with capital of \$30,000, by F. Q. O'Neill, N. H. Blitch and W. C. Geraty.

Cheraw—Door and Sash Factory.—Cheraw Door & Sash Co. has been incorporated, with capital of \$20,000, by W. F. Stevenson, D. S. Mathewson, Wm. Godfrey and others. Wm. Godfrey & Co. were reported recently to erect planing mill.

Columbia—Ice Plant.—Columbia Ice & Fuel Co. will install 25-ton ice machine for increasing capacity of its plant.

Denmark—Mercantile.—Denmark Dry Goods Co. has been incorporated, with capital of \$3000, by J. A. Creighton and others.

Georgetown—Water-works and Sewerage.—City will construct system of water-works and sewerage at cost of \$75,000, as lately reported. J. L. Ludlow of Winston, N. C., is engineer in charge of work, and may be addressed.

Greenville—Water-power Development.—Eastern capitalists have organized the Southern Water-Power Co., with capitalization of \$2,000,000, and have had surveys made for development of six different water-powers for transmission of electric power to Greenville and other towns within a distance of fifty miles. It is said that 20,000 horse-power is available.

Landsford—Water-power Development.—The American Development Co. of North Carolina, recently incorporated with capital stock of \$1,000,000, and B. N. Duke of New York, president; Geo. W. Watts of Durham, N. C., treasurer, and J. E. Stagg of Durham, N. C., secretary, will, it is reported, develop the Catawba falls below Landsford and transmit electric power for manufacturing purposes. J. E. McDonald of Winnsboro, S. C., is the agent for the company in State of South Carolina.

Spartanburg—Furniture Factory.—A \$25,000 stock company has been organized to build a furniture factory. J. C. Cauley of Mt. Airy, N. C., is to superintend the construction of plant.

Sumter—Improvement Company.—Afro-American Improvement Co. has been incorporated, with capital of \$10,000, by P. E. Capers, G. W. Murray and M. J. Frederick.

Warrenville—Bottling Plant.—The Artesian Bottle Works has been established by James Crocker and S. W. Howland.*

Yorkville—Mercantile.—Chartered: Strauss-Smith Mercantile Co., with capital of \$8000, by H. C. Strauss and others.

TENNESSEE.

Ashwood—Phosphate Mines.—Century Phosphate Co. has purchased 800 acres of phosphate lands near Ashwood.

Bledsoe County—Timber-land Development.—W. D. Young & Son of Bolivar, N. Y., have purchased 2000 acres of timber land in Bledsoe county, and will erect two saw-mills for converting the timber into lumber.

Bristol—Bakery.—C. L. Huffman of Somerset, Ky., is investigating with a view to establishing bakery in Bristol.

Carthage—Tobacco Factory.—Carthage Tobacco Works has increased capital from \$5000 to \$10,000.

Chattanooga—Lumber Mills.—Willingham Lumber Co. contemplates further enlargement and improvements of its lumber mills.

Clinton—Road Improvement.—Anderson county has decided affirmatively issue of \$10,000 of bonds for road improvements. Address County Clerk.

Cohutta (not a postoffice)—Stone Quarry.—J. C. Truce of Chattanooga, Tenn., has purchased and will operate brownstone quarry near Cohutta.

Columbia—Incubator Factory.—J. B. Ranney of Bellefontaine, Ohio, is investigating with view to organizing \$25,000 stock company for manufacture of incubators, and if successful will purchase the Seaver & Worley mill property and machinery, which can be used for manufacture of incubators.

Dickson—Ice Factory.—R. Simon, proprietor of the Dickson Bottling Works, will erect ice factory.

Franklin—Water-works.—City has ordered election September 30 to vote on issuing bonds for construction of water-works. Legislature previously granted authority for bonds, limiting the amount to \$50,000. Address The Mayor.

Johnson City—Telephone Improvements.—Bristol (Tenn.) Telephone Co. will make improvements to its Johnson City system.

Knoxville—Mattress Factory.—Proctor Furniture Co. will rebuild mattress factory reported burned at loss of \$3000.

Knoxville—Oak-extract Plant.—Southern Oak Extract Co. will enlarge its plant, and has contracted for considerable machinery. New buildings have been constructed, 600-horse-power steam plant is being installed, and an evaporating plant costing \$18,000 is being added.

Memphis—Wire-buckle Factory.—Standard Bale Wire Buckle Co., Weatherford, Texas, has established wire-buckle factory in Memphis, as recently reported.

Memphis—Clothing Company.—W. M. Wheeler of Pontotoc, Miss.; W. T. Adams of Corinth, Miss., and others have organized the Wheeler Clothing Co., with capital of \$100,000, for conducting general clothing business in Memphis.

Memphis—Shoe Factory.—Caruthers Jones Shoe Co., Caruthers Jones, president, has purchased shoe factory at Kansas City, Mo., which will be removed to Memphis and operated in connection with present plant, greatly increasing capacity of same.

Memphis—Levee Improvements.—O. N. Kiough, president, and Harry N. Pharr, chief engineer, of the St. Francis levee board, have awarded contract to M. J. Roach & Co. of Memphis at \$170,000 for all the levee improvements contemplated.

Nashville—Coal Company.—Chartered: Patton Coal Co., capital stock \$20,000, by C. M. Hash, R. A. Patton, J. L. Gaines, W. E. Carter and E. E. Duncan.

Nashville—Coal Mines.—Patton Coal Co. has been incorporated, with capital of \$100,000, by C. W. Hash, P. A. Patton, James W. Gaines, W. E. Carter and others.

New Market—Zinc Mines.—Wooton & Lay have commenced development of zinc carbonates on their property.

Salem—Cornmeal and Feed Mill.—W. M. Balch will erect two-story 60x40-foot corn meal and feed mill of 100 bushels capacity per day.

Sherman Heights—Poultry Farm.—O. J. & F. H. Stephens have purchased property at Sherman Heights, and will engage in the poultry business. Incubator buildings have been erected, and other structures, including henhouses, etc., will be erected at once. Business will be operated as the Stephens Bros. Poultry Raisers.

Waverly—Sheep-raising.—T. R. Meadow, J. R. Morris, J. N. Wright of McEwen, James Lennon of Chicago, Ill.; E. B. Teachout of Huntington, Tenn., and others have organized \$20,000 company and purchased 1600 acres of land near Waverly, and will conduct general sheep-raising industry.

TEXAS.

Amarillo—Brick and Stone Company.—Amarillo Artificial Stone & Brick Co. has been incorporated, with capital of \$20,000, for manufacture of artificial stone and brick, by F. M. Putty, Louis Anthony, R. B. Newcome and J. F. Foster.

Amarillo—Water-works.—L. W. Chase and F. W. Ramsey of Cleburne, Texas, and John K. Bryden of Pittsburg, Pa., have purchased plant of the Amarillo Light & Power Co., and will reorganize the company, incorporating as the Amarillo Water, Light & Power Co., with capital of \$100,000. Extensive improvements to water-works system will be made, including laying of six-inch mains and installation of 1,000,000-gallon reservoir in addition to standpipe already built.

Beaumont—Cotton Compress.—Beaumont Compress Co., recently reported incorporated with \$30,000 capital, has let contract to W. C. Whitney for erection of cotton compress; building to be 200x250 feet in size. About \$30,000 will be invested. C. D. Hill is manager.

Beaumont—Paper Mill.—It is reported that company has been organized in Boston with capital of \$150,000 for establishing paper mill in Beaumont. Address President Sam Parks of the Chamber of Commerce.

Beaumont—Grain and Storage Company.—Beaumont Grain & Storage Co. has been incorporated, with capital of \$50,000.

Beaumont—Soap Factory.—E. A. Luck of St. Louis, Mo., inventor of Tripoline, has about completed arrangements for establishment of his proposed plant in Beaumont. Plans have been completed for erection of four-story factory building, and contracts for machinery will soon be awarded; capacity will be 32,000 cases of soap per day. The Tripoline Manufacturing Co. will be organized by Mr. Luck and others, with F. E. Carroll, president; Walter J. Crawford, vice-president; Lewis H. Scullock, secretary, and J. L. Cunningham, treasurer.

Burkeville—Lumber Company.—Gulf Shore

Lumber Co. has been incorporated, with capital of \$5000, for manufacture of lumber, by E. F. Montgomery, E. T. Tisinger and J. W. Mattox.

Cameron—Cannery.—F. W. H. Hubert of Minerva, Texas, and associates will establish cannery at a cost of about \$2500.

Corsicana—Hardware.—W. M. Tatum, J. D. Cunningham, Ed. S. McGee and C. C. Cunningham have incorporated W. M. Tatum Hardware Co., with capital stock of \$75,000.

Dallas—Oil Company.—Knight Oil Co. has been incorporated, with capital of \$10,000, by E. G. Knight, R. E. Bryant and F. J. Tholl.

Denison—Water-works.—City contemplates constructing system of water-works. Address The Mayor.

Port Arthur—Street Improvements.—City will vote on issue of \$15,000 of bonds for street improvements. Address The Mayor.

Fort Worth—Furniture, etc.—A. J. Nix, A. M. Young and Ben W. Fouts have incorporated the Nix Furniture & Storage Co., with capital stock of \$10,000.

Houston—Irrigation System.—Tuscarawas County Rice & Irrigation Co. has been incorporated, as recently reported, and will purchase 2000 acres of land in Harris county, Texas, which will be irrigated by means of artesian wells. Machinery and an engineer will be needed. Moling Bros. of Columbus, Ohio, are the agents of the company, and will attend to purchase of machinery and employment of architects, engineers, etc. Company's business address is Urichsville, Ohio.

Mertens—Cotton Gin.—Mertens Gin Co. has been incorporated, with capital of \$10,000, for establishing cotton gin and grist mill, by John R. Gribbin, Ed Woodall, G. L. White and T. G. Hawkins.

Nacogdoches—Telephone System.—City has granted franchise to the Southwestern Telegraph & Telephone Co. for construction of system.

San Antonio—Brick Plants.—Ed D. Steger of Bonham, Texas; D. H. Scott, Harry Bettis and B. J. Baldwin of Paris, Texas, have organized company for the establishment of brick plants in Texas, Oklahoma and Indian Territories, manufacturing a patent sand-lime brick. Company has decided to erect plants at San Antonio, Houston, El Paso and Dallas, these four having combined capacity of 100,000 bricks per day. Work on the San Antonio plant will be commenced at once, machinery having been purchased at cost of \$100,000.

San Antonio—Lime Company.—Leon Lime Co. has been incorporated, with capital of \$25,000, for manufacture of lime, by Otto Wahrmund, E. G. Truehart, Albert Beite and others.

Sour Lake—Oil Storage, Pipe Line, etc.—Mutual Storage Co., recently organized with capital of \$100,000, has elected R. E. Brooks, president; G. W. Hurd, secretary-treasurer, and C. W. Brooks, general manager. Company has available storage and tankage capacity at Sour Lake amounting to 500,000 barrel, which capacity will be increased to 1,500,000 barrels. Early construction of pipe line from Sour Lake to Beaumont is one of the objects of the company.

Sour Lake—Oil Wells.—Sinclair Oil Co. has been incorporated, with capital of \$16,000, by J. E. Crosbie of Sour Lake, C. E. Anderson of Austin, R. E. Pennington of Beaumont and others.

Sour Lake—Land Improvement.—Sour Lake Land & Improvement Co. has been incorporated, with capital of \$20,000, for dealing in real estate, by J. F. Waynon, R. E. Burt and Otis McGaffey.

Texarkana—Water Company.—Texarkana Springs Water Co. has been incorporated, with capital of \$10,000, by R. W. Rogers of Texarkana, Texas; George Conway, Texarkana, Ark., and E. J. Spencer of St. Louis, Missouri.

Waco—Electrical Supply, etc., Company.—Waco Electrical Supply & Plumbing Co. has increased capital from \$20,000 to \$40,000.

Wichita Falls—Oil and Tanking Company—Texas Star Oil & Tanking Co. has been incorporated, with capital of \$40,000, to prospect for oil and minerals, by M. Lasker of Galveston, Frank Kell, W. C. Keath of Wichita Falls, M. W. Bewley, Fort Worth, and others.

Woodville—Mercantile.—J. B. Roberts and others have incorporated the Woodville Mercantile Co., with capital stock of \$20,000.

VIRGINIA.

Boxwood—Chair Factory.—D. F. Dunlop & Co., manufacturers of plow handles, are adding to their plant the manufacture of chairs.*

Max Meadows—Saw-mills.—M. M. Sutherland and associates have purchased 1100 acres of timber lands near Max Meadows, and will build two saw-mills at once.

Norfolk—Bag Factory.—N. Bloch & Co., 37 Nivison street, will establish a burlap-bag factory.*

Norfolk—Sewer System.—City contemplates constructing sewer system in seventh ward. Address The Mayor.

Norfolk—Filtration.—Sand Filtration Company of America has been incorporated, with capital stock of \$850,000, and H. C. Everdell, president.

Norfolk—Mercantile.—Griffith-Powell Company has amended charter, changing name to E. J. Griffith Company and increasing capital to \$10,000.

Norfolk—Drug Stores.—MacKinnie Drug Co., for operating a number of drug stores under one management, has been incorporated with capital of \$50,000. J. A. MacKinnie will be president.

Richmond—Shoe Factory.—Stephen Putney Shoe Co. is having plans made for erection of extensive brick and iron shoe factory and two warehouses 130x300 feet each.

Richmond—Settling Basin.—Contracts for proposed settling basin, involving an expenditure of \$34,500, have been awarded as follows: For excavation, to Winston & Co.; for conduit work, to H. H. George of Richmond, and for cement, to the Virginia Portland Cement Co., of which Baldwin & Brown are the local representatives.

Richmond—Water-power-Electrical Development.—Virginia Passenger & Power Co. reported last month as to undertake extensive developments of water-power and the erection of an electric plant for transmission, will at once begin the work. The dam previously mentioned will be forty feet high and create a lake about twelve miles long. About 10,000 horse-power will be obtained for transmission for the company's railways and for manufacturing plants. It is stated that about \$750,000 will be expended.

Riverside—Brick Works, etc.—The American Hygienic Brick-Tile Fireproofing Co., reported several weeks ago under Richmond, Va., as incorporated with capital stock of \$1,000,000, has purchased 168 acres of clay lands with shipping facilities in the vicinity of Washington, D. C., and has brick plant now in operation at Riverside with capacity of 60,000 bricks per day, and additional machinery on ground (but not installed) to increase output to 100,000 bricks per day. Company is about to install plant for manufacture of American hygienic brick-tile under the Anderson patents (owned by the company). Main office is 328 Pennsylvania Avenue N. W., Washington, D. C., with branch office at Richmond, Va.

Salem—Woolen Mill, etc.—Wm. Johnston, E. M. Fitzgerald and associates will organize a \$35,000 company to establish woolen mill and trousers factory to replace the enterprise lately burned.

Winchester—Cold-storage Plant.—Miller Storage Co. of Martinsburg, W. Va., will erect cold-storage plant at Winchester.

WEST VIRGINIA.

Anstead—Coal Mines, etc.—Nuckolls Coal & Coke Co. has been incorporated, with capital of \$25,000, as lately reported, for development of coal mines; capacity will be 300 tons per day. Address T. C. McVey of the company at Pratt, W. Va.*

Fairmont—Marion-Silax Building Stone Co. has been incorporated, with capital of \$25,000, and M. B. Bartlett, president; James H. Leonard, vice-president-general manager, and H. H. Lanham, secretary-treasurer.

Grafton—Fire-brick Works.—Grafton Fire-Brick Co. has applied for charter. It owns several hundred acres of fire-clay, and will develop. Large buildings will be erected and the latest improved machinery installed for making 50,000 brick per day.

Grafton—Telephone System.—Consolidated Telephone Co. has arranged to extend lines to Pittsburg, Wayneburg, Connellsburg, Uniontown and Wheeling, the work to be done inside of three months.

Grafton—Woodworking Plant.—R. W. Kennedy Company, now operating a box factory, has leased a mill and will at once begin the manufacture of building supplies and inside finishing. The mill is equipped, but some additional machines will be put in.

Moundsville—Cigar Factory.—Chartered: West Virginia Stogie Co., with capital of \$56,000, to manufacture cigarettes, stogies and tobacco; Incorporators, C. A. Weaver, W. W. Smith, M. P. Henderickson and J. F. Francis of Moundsville, and A. F. Francis of Cameron, W. Va. Building will be 36x75 feet.

Raleigh—Lumber Mills.—Chartered: Blue Jay Lumber Co., by P. P. Griffin, Lock

Haven, Pa.; P. C. Lynch, Corry, Pa.; C. L. Goodwin, Dunio, Pa. Several thousand acres of timber lands near Max Meadows, and will build two saw-mills at once.

Norfolk—Bag Factory.—N. Bloch & Co., 37 Nivison street, will establish a burlap-bag factory.*

Randolph County—Timber-land Development.—Major Orr and Frank Pierce of Kingwood, W. Va., and M. Judson Orr of Newburg, W. Va., have purchased 558 acres of timber land in Randolph county, and will build mills for manufacture of lumber.

St. Mary's—Lead and Silver Mines.—West Virginia Silver & Lead Mining Co. has been organized for operating lead and silver mines reported recently to be developed by J. W. Hines, F. C. Persival, Wm. Kibbee and M. L. Barren. Capital stock is \$500,000. Address John Hines, president.

Sutton—Gas and Oil Wells.—Bonwell Oil & Gas Co. has been incorporated, with capital stock of \$25,000, for the purpose of drilling for oil and gas. Incorporators are C. E. Bonwell, J. R. Hyer, E. B. Corbin, C. H. Bland and W. C. Swan.

INDIAN TERRITORY.

Muskogee—Garment Factory.—Muskogee Garment Manufacturing Co. has been incorporated for manufacture of clothing, as recently reported, and will build two-story factory 50x100 feet; capacity will be fifty dozen garments per day.

OKLAHOMA TERRITORY.

Alva—Lumber Mills.—Chartered: Alva Lumber Co., with \$10,000 capital stock, by T. H. M. D. and R. C. Temple.

Dutton—Cotton Ginnery.—Incorporated: Farmers' Cotton Ginning Co., with \$5000 capital stock, by Wiley King, O. L. Frain, C. C. Fisher, Edgar Diehl and John Bryan.

Guthrie—Corn and Cane Harvester Company.—Talmage Corn & Cane Harvester Co. has been incorporated, with capital of \$10,000, by L. E. Talmage, J. E. Settle, W. F. Ridge, Clinton Steel of Yukon, S. T. Postlewaite of El Reno, O. T., and others.

Lawton—Gold, Silver and Copper Mines.—Queen Bee Mining & Milling Co. reported recently as incorporated with capital stock of \$3,000,000 by W. C. Moore and others, has 200 acres of gold, silver and copper lands which it will develop at once.*

Lawton—Mercantile.—Chartered: J. C. Bardwell & Co., with capital of \$2000, by J. C. Bardwell and others.

Meers—Mining.—Chartered: Vanderbilt Mining Co., with \$1,000,000 capital, by L. S. and A. S. Walter, W. L. Crush and J. E. Trogdon of Kansas City, Mo.; J. W. Wardwell of Springfield, Mo., and A. J. Kirk of Meers.

Oklahoma City—Hardware Company.—Alton-Dawson Hardware Co. has been incorporated, with capital of \$150,000, by S. T. Alton, K. W. Dawson, S. L. Maxwell, C. J. Tuohy and Frank Wells.

Oklahoma City—Fruit Company.—Alton-Dawson Fruit Co. has been incorporated, with capital of \$50,000, by S. T. Alton, K. W. Dawson, John Wood and others.

Perry—Sewers.—City council has passed ordinance providing for construction of lateral sewer in sewer district No. 1. Address The Mayor.

BURNED.

Greenup, Ky.—The saw-mills of Marshall Logan & Sons and James Boggs.

Guntersville, Ala.—Mr. Massey's saw-mill at Long Hollow.

Hot Springs, Ark.—Valley Planing Co.'s mill; loss reported as \$25,000.

Kinston, N. C.—Carolina Warehouse Co.'s warehouse and prizery; estimated loss \$9000. Lexington, Ky.—Bluegrass Stove and Iron Works; estimated loss \$40,000.

Pleasant Ridge, Ky.—Flour mill, corn mill and saw-mill of Westerfield Bros.; loss \$6000.

Sheldon, S. C.—Cotton gin of Attaway & Black.

Troy, Tenn.—W. H. Nichols' saw-mill.

Tuscaloosa, Ala.—Roundlap-bale plant of American Cotton Co.; estimated loss \$11,000.

BUILDING NOTES.

*Means machinery, proposals or supplies are wanted, particulars of which will be found under head of "Machinery, Proposals and Supplies Wanted."

Arlington, Texas—School.—J. I. Carter, secretary school board, will receive bids until September 14 for erection and completion of eight-room brick school building. Certified check for \$500 must accompany each bid. Plans are on file at office of E. H. Silven,

architect, 226 Main street, Dallas, Texas, and at Citizens' National Bank, Arlington.

Augusta, Ga.—Stores and Flats.—I. S. Bell will erect the building for which McMurphy & Story were reported last week as preparing plans; structure to be 75x81 feet in size, equipped for stores and flats.

Austin, Texas—Depot.—Charles H. Page, Jr., has prepared plans and specifications for construction of a number of passenger depots to be built at various towns by the Trinity & Brazos Valley Railroad Co.

Baltimore, Md.—Apartment-house.—John S. Cassell has made plans for remodeling the three-story dwelling 303 North avenue into an apartment-house.

Baltimore, Md.—Cottage.—W. V. P. Montgomery is erecting two-story cottage at cost of \$6000 after plans by W. O. Starklin.

Baltimore, Md.—Business Building.—John T. Buckley has been awarded contract for making improvements to building 302 West Baltimore street for Little Joe Wiesenfeld after plans by George C. Haskell.

Belton, Texas—School.—T. L. Means, secretary board of school trustees, will receive bids until September 25 for erection of two-story brick and stone high-school building. Plans and specifications can be seen at office of architects, Smith & Moore, Fort Worth; office of Stuart Moore, Dallas, and office of T. L. Means. Each bid must be accompanied by certified check for \$200. Bond required and usual rights reserved.

Brookhaven, Miss.—Bank Building.—Merchants and Planters' Bank will erect a bank building. F. F. Becker is president.

Cambridge, Md.—Business Block.—Lee Dixon will erect brick and stone business block.

Charlotte, N. C.—Depot.—Southern Railway will expend \$15,000 in improving and remodeling depot at Charlotte; C. H. Ackert, general manager, Washington, D. C.

Cockeysville, Md.—Bank Building.—J. S. Fowlke has contract for erecting the new national bank building at Cockeysville previously mentioned; cost \$17,000.

Columbia, S. C.—Business Block.—J. L. Mimnaugh will erect new business block to replace structure recently burned.

Danville, Va.—Warehouse.—American Tobacco Co. will erect storage warehouse 100x400 feet, one story.

Decatur, Ala.—Business Building.—The business building for which Cowell & Love of Huntsville, Ala., were reported last week as preparing plans will cost about \$10,000. Mrs. E. Lyons will be the owner.

Dublin, Ga.—Bank Building.—Citizens' Bank of Dublin (lately organized) is having plans made by E. J. Fuller for erection of two-story stone-front bank building.

Excelsior Springs, Mo.—Hotel, etc.—Excelsior Springs Electric Railway Co. contemplates building a hotel, constructing a bridge across the Missouri river and making other improvements in connection with its proposed railway. Lester S. Parker of Jefferson City, Mo., is president.

Fort Worth, Texas—Car Barn.—Northern Texas Traction Co. will erect car barn 150x320 feet, to cost \$35,000.

Hamilton, Md.—Church.—George Sack of Lauraville, Md., has contract for erecting new Grace Evangelical Lutheran Church at Hamilton; will be of frame and stone, and cost \$7000.

Hattiesburg, Miss.—Depot.—Gulf & Ship Island Railroad Co., R. Morgan, general superintendent, Gulfport, Miss., will erect new depot at Hattiesburg, as lately reported, but plans are not as yet matured.

Italy, Texas—Hotel and Business Building.—Ferry & Casler of Dallas, Texas, have secured contract at \$24,900 for erection of the J. V. Clark Hotel, 100x100 feet, and J. E. Lloyd's 50x100-foot brick building at Italy.

Kansas City, Mo.—Theater.—Forest Park Amusement Co., Max Orthwein and Colonel Hopkins of St. Louis, Mo., stockholders, will erect large theater in Kansas City.

Knoxville, Tenn.—Warehouse.—H. O. Nelson is erecting two-story warehouse 62x120 feet.

Knoxville, Tenn.—Asylum.—Proposals will be opened September 19 for the erection of addition to the East Tennessee Hospital for the Insane. Plans and specifications can be seen at office of Leon Beaver, architect.

Laurel, Miss.—Bank Building.—J. P. Krouse of Meridian, Miss., is preparing plans and specifications in detail for the First National Bank's proposed office building.

Laurel, Miss.—Residence.—P. J. Krouse, Meridian, Miss., is preparing plans for two-story frame residence for Dr. S. W. Lindsey, to cost \$4000.

Laurel, Miss.—Bank Building.—P. J. Krouse of Meridian, Miss., is preparing plans

for bank building for First National Bank of Laurel, to be one story, 38x50 feet, brick, trimmed with stone and terra-cotta, heated by steam, to have vault doors, bank fixtures and furniture, tile floors, marble wainscoting, and to cost \$20,000.

Lebanon, Va.—Residence, Office and Store Building.—W. E. Bures is erecting three-story stone and brick residence, also office and store building.

Lebanon, Va.—Store, Office and Hotel Building.—L. L. Bays & Sons are constructing four-story store, office and hotel building.*

Linden, Ala.—Hotel.—D. C. Coats will build hotel of twenty-one rooms to cost \$5000. Thomas Puls is architect in charge.

Macon, Ga.—Church.—Plans have been completed and contracts awarded for erection of the \$20,000 centenary Methodist Church, previously reported; will be 115 feet long, of brick. Address Rev. Harry Bardwell.

Mobile, Ala.—Business Building.—G. Van Antwerp & Sons have awarded contract to Jeff Bros. for erection of five-story brick business building.

Monroe, La.—Market-house.—Architect Weathers of Memphis, Tenn., has completed plans for new market-house at Monroe; building will be of steel, pressed brick and stone, 150x135 feet, and cost \$20,000.

Nashville, Tenn.—Store Building.—Timothy Dry Goods Co. will rebuild store building to replace one recently burned.

New Orleans, La.—School.—New two-story brick schoolhouse with seating capacity of 1000 pupils will be built for St. Joseph's parish; Rev. Father T. J. Weldon, C. M., pastor.

New Orleans, La.—Building.—Bids will be received until September 23 for erection and completion of four-story brick building for National Enameling & Stamping Co., according to plans and specifications, which can be had at office of Favrot & Livaudais, architects, 829 Gravier street, New Orleans, La. Each bid must be accompanied by certified check for \$1500. Bond required and usual rights reserved.

New Orleans, La.—Officers' Quarters.—Mordac T. Endicott, chief of bureau of yards and docks, Navy Department, Washington, D. C., will receive sealed proposals until September 26 for constructing three frame dwellings at naval station, New Orleans, La. Funds available, \$22,800. Plans and specifications can be seen at the bureau or will be furnished by the commandant of the naval station upon deposit of \$10.

Norfolk, Va.—Bank Building.—Commercial Realty Co. (to be chartered by directors of National Bank of Commerce) will erect a 12-story bank building with all modern improvements as a bank and general office building.

Oklahoma City, O. T.—Temple.—Contracts have been awarded for erection of the proposed Shriners' temple. Plans, which were prepared by Coudy & Webster, call for five-story fireproof structure of steel, cut stone and pressed brick; cost \$20,000.

Port Arthur, Texas—City Hall.—City will vote on issue of \$35,000 of bonds for erection of city hall. Address The Mayor.

Portsmouth, Va.—Apartment-house.—R. R. Robertson, Chas. T. Parrish, F. S. Hope, J. Davis Reed and K. R. Bain are having plans made for erection of seven-story apartment-house to have all modern improvements, including electric lights, steam heat, elevators, etc.

Raleigh, N. C.—State Capitol.—Frank P. Milburn of Columbia, S. C., previously reported to prepare plans and specifications for alterations and additions to State Capitol to cost \$300,000, has completed same.

Russellville, Ky.—Courthouse.—Contract has been awarded E. W. Furey of Newport News, Va., at \$33,000 for completion of Logan county's new courthouse.

Selma, Ala.—Elks' Building.—W. R. Peacock states that contract has practically been let for the erection of the proposed Elks' building.

St. Louis, Mo.—Parish House.—William H. Gruen, architect, 617 Chemical Building, has awarded contracts for parish house for Church of Redeemer, to be two stories, of brick, with sandstone trimmings, 40x73 feet, to have electric lights, sanitary plumbing, heated by steam, etc.; cost \$13,000.

St. Louis, Mo.—Apartment-house.—Chas. K. Rumsey, architect, has completed plans for two buildings, hotel and apartment-house, to cost \$350,000. Contracts will be awarded at once for erection of same; will be four stories, 300x125 feet.

St. Louis, Mo.—Fair Building.—Texas World's Fair Commission has awarded contract to Joiner T. Taylor of Houston, Texas,

at \$45,562 for erection of the Texas building at St. Louis exposition.

Thomas, W. Va.—Store Building.—M. Bulle has let contract to the Home Building Co. of Keyser, W. Va., for construction of three-story store and dwelling-house.

Vicksburg, Miss.—Hall.—Knights of Pythias contemplate building a \$20,000 hall.

Washington, D. C.—Apartment-house.—John T. Wilson, 913 E. Main street, Richmond, Va., has contract to build Roosevelt apartment-house at Twentieth and P streets; building to be eight stories high, fireproof throughout, contain 125 living rooms, lower floor to be a large department store, and to cost \$175,000.

Washington, D. C.—Hotel.—Architects P. T. Marye and Fred A. Wright have sent out plans for the proposed new Hotel Potowmac; building will be twelve stories, of fireproof construction, and cost \$1,000,000.

RAILROAD CONSTRUCTION.

Railways.

Adrian, Ga.—The Wedley & Mt. Vernon Railroad will, it is reported, soon lay track on its extension from Broxton to Barrows Bluff, on the Okmulgee river, eleven miles.

Anniston, Ala.—The Eastern Alabama Railway from Talladega to Pyriton has been completed and put in operation. It is in the L. & N. system.

Atlanta, Ga.—The Atlanta & Marietta Electric Railway Co. has applied to the county board for a franchise to build its line. It will be about twenty-five miles long.

Baltimore, Md.—The Baltimore & Ohio Railroad Co. will, it is reported, lay additional tracks in the yards at Parkersburg, W. Va. J. M. Graham is chief engineer at Baltimore.

Burnsville, Tenn.—Reported that the East Tennessee Electric Co. will build a railway from Burnsville to Boonford, seven miles.

Chattanooga, Tenn.—The Central of Georgia Railway has completed its branch to Cloud Springs. It leaves the main line at Mission Ridge.

Cheeraw, S. C.—The Chesterfield & Lancaster Railroad will, it is reported, build a 15-mile extension from Ruby to Plains. The survey is reported under way. W. F. Stevenson is president at Cheeraw.

Cincinnati, Ohio.—A mortgage is recorded for a railway from Columbus, Ohio, to Mayville, Ky., with an extension from the latter place, ninety miles through Jackson, Pike, Floyd and Martin counties, Kentucky, to form an outlet for the coal fields on the west side of Big Sandy river. The Great Northern Coal & Coke Co. is said to be promoting the line. That company includes J. N. Camden and Sprigg Camden of Parkersburg, W. Va.; P. I. Kimberly of Sharon, Pa.; F. A. Dimley and Robert Nomion of Chicago; Geo. C. Howe of Duluth; J. C. Mays of Paintsville, Ky., and members of an Eastern syndicate.

Columbus, Miss.—The Columbus, Memphis & Pensacola Railroad Co. has been organized by electing officers as follows: Newman Cayce, president; E. C. Chapman, vice-president; Warren M. Cox, secretary; John A. Stinson, treasurer; W. B. Walker, general counsel; directors, Newman Cayce, Walter Weaver, P. W. Maer, Warren Cox, E. C. Chapman, John A. Stinson, J. W. Buchanan and W. B. Walker; executive committee, Newman Cayce, Walter Weaver and P. W. Maer.

Dallas, Texas.—The Rusk & Southwestern Railway Co. has been chartered to operate and extend the State Railroad in Cherokee county. The incorporators are W. H. Knox, H. Knox, C. W. Hawley, Robert Angel and W. F. Robertson of Dallas, J. B. Reagan, E. L. Gregg, Robert Pryor, A. F. Kirkpatrick and S. P. Wilson of Rusk.

Elkin, N. C.—Miller Hinshaw is reported as saying that arrangements have been completed to build a railroad from the Southern Railway two miles above Elkin, via Dimmette and Lomax, to Stone Mountain. Rights of way secured for the line, which is to be built to get timber and stone from the mountains around Traphill.

Elkins, W. Va.—The Coal & Coke Railway Co. is receiving bids for grading on about ten miles of single-track railroad from the mouth of Copen run, near Burnsville, Braxton county, West Virginia, to a point on Perkins fork of Cedar creek. Plans and profile at the office of W. H. Bower, general manager, at Elkins, or at the office of A. A. Chapman, engineer, Weston, W. Va.

El Reno, O. T.—The Middle States Construction Co., J. E. Henderson, president, El Reno, O. T., has the contract for constructing and equipping the St. Louis, El Reno & Western Railway, now under construction from Guthrie southwest through El Reno,

O. T. The grading for sixty miles of road is about 75 per cent. finished, and tracklaying will begin at Guthrie about October 1. Contracts for tracklaying, depots, section-houses, water stations and fencing have not yet been let. H. A. Genung, El Reno, O. T., is chief engineer St. Louis, El Reno & Western Railway Co., and C. C. Nelson, Fort Scott, Kan., is president.

Fort Smith, Ark.—Mr. S. A. Williams, president of the Sebastian Electrical Co., writes the Manufacturers' Record that it proposes to run a trolley line of railway through the coal area of Sebastian county, connecting various towns with Fort Smith. The towns are Jenny Lind, Bonanza, Huntington, Mansfield, Hartford, Mine No. 3 and 4 of American Smokeless Coal Co., Burma, Montreal, Greenwood and Wicerville. Greenwood will be the power point, with substations where needed. The line will be about fifty miles long, and will connect with the St. Louis & San Francisco, the Missouri Pacific, the Choctaw, Oklahoma & Gulf, the Midland Valley, the Arkansas Central and the Kansas City Southern railroads. Rights of way are being secured, but the company is not yet ready for construction bids, though it is hoped to begin building soon.

Fort Worth, Texas.—F. M. Haines, general manager of the Northern Texas Traction Co., is reported as saying that the line from Fort Worth to Dallas will be double-tracked. Franklin, La.—The Franklin & Abbeville Railroad is reported practically completed from Franklin to Abbeville.

Gainesville, Ga.—Mr. H. D. Jaquish informs the Manufacturers' Record that the proposed Atlanta, Beaufort & Gainesville Electric Railway will be about sixty miles long.

Green Sea, S. C.—It is reported that Dernham & Co. will build a railroad from Green Sea, ten miles, to Howard, on the Atlantic Coast Line.

Hayneville, Ala.—Construction of the Hayneville & Morganville Railway, eight and one-half miles long, has begun. The officers are: Col. Willis Brewer, president; Dr. W. P. Russell, treasurer; W. P. McGough, secretary and attorney; F. M. Milner, construction engineer.

Hazlehurst, Miss.—Rights of way have been secured for the Coen Electric Belt Railway, which is to connect Hazlehurst, Gallatin, Brown's Wells, Bowerton, Barlow, Mizpah, Willing and other points in Copiah county. M. V. Sickley of Michigan and Henry Russell of Minnesota are reported interested.

Hazlehurst, Miss.—Russell & Seeckle, promoters of the electric interurban belt line, have been granted rights of way by the city council.

Hendersonville, N. C.—Reported that W. A. Smith, attorney-at-law, has received from Charles B. Thompson, Hotel Marlborough, New York city, a proposition to build an electric railway to connect Hendersonville, Asheville & Rutherfordton, on condition that Henderson county issues \$100,000 of bonds.

Hillsboro, Texas.—The Missouri, Kansas & Texas Railway is reported to have let the contract to lay thirteen new tracks with 100 cars capacity in the south yard.

Jennings, La.—The Jennings & Northeastern Railroad Co. has been granted a franchise through the city. The Commercial League has appointed a committee to close a deal for building the road.

Jonesboro, Ark.—E. H. Mathes is reported as saying that men are at work clearing right of way for the Jonesboro, Newport & Western Railroad, which will be forty miles long from Jonesboro to Newport. The line is to be completed within eighteen months. E. L. Westbrook is general manager.

Kansas City, Mo.—The Excelsior Springs & Missouri City Railroad Co. has been chartered to build an electric line ten miles long to connect the two towns. The incorporators are Lester S. Parker, Maurice A. Wogan, Sidney P. Allen, W. E. Winner, John W. Creech, Charles S. Curry and Elmore S. Truitt. The line may also be built from Missouri City to Kansas City, twenty-one miles. Mr. Creech, one of the incorporators, is a member of the firm of Creech & Lee, railroad contractors at Kansas City. L. S. Parker is president, and John W. Creech, vice-president and general manager. An extension may be built to Richmond and Liberty.

Lawrenceville, Ga.—The Lawrenceville Branch Railroad will, it is reported, lay new ties and rails. It is ten miles long. J. R. McKelvey is lessee and manager.

Lenoir, N. C.—The Carolina & Northwestern Railroad is reported to have 300 men employed twenty miles beyond Lenoir in grading for the proposed extension over the mountain.

Little Rock, Ark.—The Marion County Railway Co., capital \$250,000, has been chartered to build a line connecting with the White branch of the Missouri Pacific on the north bank of White river, opposite the mouth of the Buffalo river. It will be twenty-five miles long. The incorporators are J. C. South, Z. H. Horton, Thomas Combs, F. J. McLean, George E. Dodge and J. E. Williams of Little Rock, J. S. Pyeatt and E. G. Merriam of St. Louis. It is a Gould line.

Little Rock, Ark.—The Varner Construction Co. has been organized to build the Varner, Cummings & Eastern Railroad. William Lange is president; A. L. Dalhoff, vice-president; L. E. Boyd, secretary, and Ben Franklin, treasurer.

Louisville, Ky.—The Louisville & Eastern Electric Railway will, it is reported, soon begin work on its proposed extension from Lakeland to Shelbyville, and also on the Louisville & Southern extension from Beard's Station. The final survey has been accepted.

Louisville, Ky.—It is reported that in consequence of a deal to combine the Kentucky and Indiana Bridge & Railroad Co. and the Louisville & Southern Indiana Traction Co., \$250,000 will be spent for constructing new track to make a double-track line connecting Louisville with Jeffersonville and New Albany, Ind.

Madisonville, Texas.—The International & Great Northern Railroad has completed its extension to Madisonville.

Memphis, Tenn.—Grading has been completed on the Memphis Belt Line from Gayoso bayou north and east for two miles to Billings Park. The Southern Construction Co. has this contract. Roach & Monigan have the grading contract from Billings Park to McGhee Station; have 200 teams on the work.

Nacogdoches, Texas.—The Citizens' Guarantor Committee has, it is reported, closed a deal with E. B. Hayward and associates of Davenport, Iowa, for seventeen miles of railroad along the old roadbed of the Red River, Shreveport & Western line.

Nashville, Tenn.—The Tennessee Central Railroad is reported to be extending the Crawford branch fifteen miles north of Monterey into timber and mineral country. W. N. McDonald is chief-engineer.

Norton, Va.—The Cumberland Transportation, Light & Power Co., recently incorporated to build an electric railway in Wise county, has decided to make an extension to Clintwood, Dickenson county, from Tom's Creek. Other towns to be connected are Big Stone Gap, Stonega, Appalachia, Dorchester, Norton, Wise, Glamorgan and Coeburn.

Oklahoma City, O. T.—The Missouri, Kansas & Texas Railway has begun operating its new line from Oklahoma City to Agron, O. T., fifty-five miles. The line is to be completed to Bartlesville, I. T., by October 1.

Oklahoma City, O. T.—The Great Eastern & Western Railway Co., capital \$10,000,000, has been chartered to build a line from Madge, Greer county, via Lawton and the Chickasaw Nation to Huntington, Ark., 262 miles. The incorporators are Seymour C. Heyman, J. M. Owen, E. E. Brown, W. M. Harrell and J. B. Harrell, all of Oklahoma City.

Philadelphia, Pa.—Chief Engineer W. H. Brown of the Pennsylvania Railroad has opened bids for the new terminal at Washington, more than 100 being received. The award is not to be made for a week or ten days.

Port Lavaca, Texas.—Ross L. Clark, president of the Coast Belt Railway, is quoted as saying that construction will begin within a month. The line will connect Sinton, Galveston and Houston, and will be 250 miles long.

Portsmouth, Va.—The Seaboard Air Line will, it is reported, build a direct entrance into Atlanta. J. M. Barr is general manager.

San Francisco, Cal.—Mr. J. Krutschmidt, fourth vice-president and general manager of the Southern Pacific Company, writes the Manufacturers' Record that nothing definite has been decided upon at present regarding the extension of the Gulf, Western Texas & Pacific Railway in Refugio county, Texas.

San Francisco, Cal.—The Southern Pacific Company will, it is reported, build a line from Durango, Mexico, to point on its line in Arizona. William Hood is chief engineer.

Santa Fe, New Mexico.—Mr. Allan G. Kennedy, chief engineer Santa Fe Railway Co., writes the Manufacturers' Record confirming the report that the company will build a line from Torrance, New Mexico, to Big Springs, Texas, and saying that surveying parties for the work are just starting into the field. Such a line would be about 300 miles long.

Shreveport, La.—The Louisiana Railway & Navigation Co., formerly the Shreveport

& Red River Valley Railway, has been granted entrance to New Orleans by action of the city council. Should the New Orleans Terminal Co. ('Frisco system) not build its Belt Line within a year, the Louisiana Railway & Navigation Co. may construct it. W. E. Hawley is chief engineer at Shreveport.

St. Augustine, Fla.—The Florida East Coast Railway has purchased rights of way to straighten its line from the union depot along the San Sebastian river. Mr. J. R. Parrott is vice-president and general manager at St. Augustine.

St. Louis, Mo.—W. S. Brawner and Charles Cundiff of St. Louis are reported to be promoting a belt line, for which a survey has been made, connecting Joplin, Scotland, Neosho, Granby, Peirce City, Sarcoxie, Carthage, Webb City and Carterville in the zinc-mining district of Missouri. Rights of way are being secured.

Taylorsville, N. C.—Committees have been appointed to work for a charter for the proposed Taylorsville, Wilkesboro & Newton Railroad, which may be either steam or electric. Among those interested are W. C. Flimstay of Newton, Milton McNeil, F. B. Henderson and others of Wilkes.

Williamsport, Pa.—The Northern Central Railway will, it is reported, issue \$4,000,000 of new stock to pay for present and projected improvements, including a detour line around Baltimore, Md. J. H. Nichol is principal assistant engineer at Williamsport.

Williamson, W. Va.—H. M. Payne, assistant engineer Norfolk & Western Railway, is quoted as saying that double-tracking from Williamson to Hatfield Tunnel will be completed by September 15; also that grading on the line up Buffalo creek to reach coal fields and to connect with the Norfolk & Western at Barger Sliding, W. Va., was begun August 17 by Walton & Co. The same firm have also received the contract for another coal branch line to be built from Williamson up Williamson branch to coal fields on the other side of the mountain from the Buffalo Creek line.

Street Railways.

Augusta, Ga.—The Aiken & Augusta Electric Railway has applied for a franchise on Broad, McKinne, Jackson and Telfair streets.

Birmingham, Ala.—The Birmingham Railway, Light & Power Co. has been granted a franchise in Bessemer.

Chattanooga, Tenn.—The Chattanooga Electric Railway Co. is reported to have plans for lines to the top of Lookout mountain and to the permanent army post at Cloud Springs.

Fort Worth, Texas.—Col. Robert McCull, representing a company which proposed building a street-car line from Fort Worth to Arlington Heights, is reported as saying that it may be built to Lake Como.

Kansas City, Mo.—The Excelsior Springs Electric Railway Co. has been incorporated to build a line at Excelsior Springs. Those interested are Henry N. Garland, E. S. Jewett, U. C. Ward, Herbert S. Padley and Jas. B. McGowan. Erastus L. Morse of Excelsior Springs is also reported interested.

Muskogee, I. T.—C. N. Haskell of the Muskogee Traction Co. has given \$10,000 bond to begin work on the street railway within thirty days.

Newport News, Va.—Robert I. Mason, receiver of the Hampton Roads Railway Co., is reported as saying that the bondholders have agreed to provide \$300,000 for completing construction of the road and settling claims.

Richmond, Va.—The Virginia Passenger & Power Co. will, it is announced, extend its Seven Pines line ten miles to a point beyond Mechanicsville. Fritz Sitterding is president. Mr. Frank J. Gould is also quoted as saying that an extension may also be built to Ashland, eighteen miles.

Facts Worth Remembering.—A leaflet that will interest owners of business buildings and industrial plants of all kinds has been issued with the title "Facts Worth Remembering." Its contents refer to the services which the American Appraisal Co. offers in connection with fire insurance policies. Aside from the interference with one's business caused by fires, many men are aware of the loss and inconvenience and the difficulties that arise in the equitable settlement of insurance contracts. The American Appraisal Co. aims to simplify matters in this regard, and offers its services in keeping an appraisal fully up to date, so that the insurance may be promptly determined. This is one of the new features of American business life that is finding a ready recognition among discerning people. Send for a copy of this leaflet, addressing the company's New York office at 54 William street; Philadelphia offices are at 610 Crozier Building, and Boston offices at 176 Federal street.

Machinery, Proposals and Supplies Wanted.

Manufacturers and others in need of machinery of any kind are requested to consult our advertising columns, and if they cannot find just what they wish, if they will send us particulars as to the kind of machinery needed we will make their wants known free of cost, and in this way secure the attention of machinery manufacturers throughout the country. The MANUFACTURERS' RECORD has received during the week the following particulars as to machinery that is wanted.

Automatic Sprinklers.—See "Electrical Equipment."

Bag Machinery.—N. Bloch & Co., 37 Nivison street, Norfolk, Va., want machinery for sewing burlap bags.

Bakery Equipment.—Southern Supply Co., Mobile, Ala., wants addresses of parties manufacturing machinery for making crackers, cakes, etc.

Barges.—Wm. B. Ladue, captain, engineers, Mississippi river commission, Fullerton Building, St. Louis, Mo., will receive sealed proposals in triplicate until September 21 for building three-decked material barges. Information furnished on application.

Bed-spring Machinery.—Edwin Nelson, Miami, Fla., will want machinery to make all-steel bed springs.

Boat-Banning Manufacturing Co., Edenton, N. C., will probably purchase new boat to replace one lately burned.

Boiler.—B. S. Lucas, Roper, N. C., wants 40-horse-power and a 20-horse-power return tubular boiler to stand 100 pounds working pressure; good second-hand.

Boiler and Engine.—See "Mattress Factory."

Boiler and Engine.—Jefferson D. Marks, Crowley, La., will want 150-horse-power engine and 100-horse-power boiler.

Boiler and Pump House.—Robert E. King, secretary board of public works, Kansas City, Mo., will receive sealed bids until September 17 for furnishing all material and labor necessary for erection and completion of fireproof boiler and pump house for Turkey Creek pumping station; size of building 137x176 feet. Scope of contract consists of about 2000 cubic yards of concrete for foundation, 1,075,000 brick, 24,000 square feet reinforced concrete roofing, 5500 square feet metal windows and thirty-three tons of structural steel. Bids will be received on each of the above items separately. Plans, details and specifications can be seen at office of superintendent of water department at the City Hall. Certified check for 5 per cent. of amount of bid must accompany each bid. Usual rights reserved.

Bottling Equipment.—Artesian Bottling Works, Warrenton, S. C., wants to buy second-hand Crown cap table and half-pint Hutchingson and Crown cap bottles.

Bridge.—Jefferson City, Mo., will soon ask bids for a steel bridge of 30 or 40-foot span, costing about \$2000. J. C. Herring is city engineer.

Bridge Construction.—Contract for furnishing material and labor and to construct bridge across Chattahoochee river near Vinings will be let at public outcry October 1. Plans and specifications can be seen at office of clerk of the board of commissioners of roads and revenues of Fulton county at Atlanta, Ga., and at office of the ordinary of Cobb county at Marietta. Certified check for \$500 and bond required. Usual rights reserved.

Broom Machinery.—C. O. DuVall, Douglas, Ga., wants to correspond with manufacturers of broom machinery.

Building Materials.—L. L. Bays & Sons, Lebanon, Va., are in market for flooring, metal roofing, windows, doors, etc.

Building Materials.—Nuckolls Coal & Coke Co., Pratt, W. Va., wants lot of building materials. Address T. C. McVey.

Cast-iron Borings.—Clark & Hines, 809 Equitable Building, Baltimore, Md., are in market for cast-iron borings in carload lots f. o. b. Baltimore, Md., with prices on same.

Chair Bottoms.—D. F. Dunlop & Co., Boxwood, Va., want to purchase chair bottoms of cane and wood.

Conduit and Electric-wiring System.—James Knox Taylor, supervising architect, Treasury Department, Washington, D. C., will receive sealed proposals until October 7 for installation of conduit and electric-

wiring system for United States custom-house and postoffice at Newport News, Va., in accordance with plans and specifications, copies of which may be obtained at supervising architect's office or at office of superintendent of construction at Newport News.

Conveying System.—Rockingham Milling Co., McGaheysville, Va., wants estimates on construction of tramway 1500 feet long from mill to railway, crossing stream 150 feet wide and conveying about 2000 pounds at each trip; elevation to be slightly higher at mill, and highest elevation above ground to be about thirty feet.

Cotton Machinery.—W. T. Owen, 1115 Noble street, Anniston, Ala., wants addresses of manufacturers of machinery for making cotton towels.

Dry-kiln.—See "Mill Supplies."

Electrical Equipment.—Weems-Lockwood Furniture Co., Greenwood, Miss., wants dynamo and electrical equipment for 150 lights, steam-heating apparatus, automatic sprinklers, hardware and tools.

Elevator.—James Knox Taylor, supervising architect, Treasury Department, Washington, D. C., will receive sealed bids until September 21 for installation of an electric elevator in the United States postoffice and custom-house, Charleston, S. C., in accordance with drawings and specifications, copies of which may be obtained at office of supervising architect.

Engine.—E. A. Howes, Atkinson, N. C., wants new or second-hand 100-horse-power engine.

Engine.—Spray Woolen Mills, Spray, N. C., will buy new Corliss engine of 125 horse-power.

Engines.—See "Hoisting Equipment."

Fence and Gates.—Board of supervisors Russell county have completed stone wall of 200 feet or more around courthouse, and are in market for ornamental metal fence and gates for same. Address L. L. Bays, clerk county court, Lebanon, Va.

Fire-department Equipment.—Town of Timmonsville, S. C., wants to buy fire hook-and-ladder outfit, and desires correspondence with manufacturer. Address A. J. Broom, secretary and treasurer.

Fire Extinguishers.—Proposals will be received at bureau of supplies and accounts, Navy Department, Washington, D. C., until October 27 for furnishing fire extinguishers at several navy-yards. Blank proposals will be furnished on application to the navy pay office, Portsmouth, N. H.; Boston, Mass.; New York, N. Y.; Philadelphia, Pa.; Washington, D. C., and Norfolk, Va.; H. T. B. Harris, paymaster-general, U. S. N.

Flooring.—Rhode Island Company, Spray, N. C., is in market for 18,000 feet of maple flooring, factory grade.

Flour Mill.—Kentucky Milling Co., Henderson, Ky., is in market for bids on mill supplies and other materials for flour mill.

Flour Mill.—Holland & O'Neal, Cockeysville, Md., will want machinery for flour mill of seventy-five barrels capacity.

Gas-well Fixtures.—See "Oil-well Supplies."

Hardware.—D. C. Brown & Bros., Anderson, S. C., wants to purchase a bill of hardware.

Hardware.—See "Electrical Equipment."

Heating and Ventilating Apparatus.—Henry B. F. Macfarland, Henry L. West and John Biddle, commissioners, Washington, D. C., will receive sealed proposals until September 19 for furnishing and installing mechanical heating and ventilating apparatus in the rear wing of workhouse for males, Washington Asylum grounds. Specifications and drawings sufficient to give the commissioners and consulting engineer a clear understanding of system proposed to be used must accompany the proposal. Forms of proposals may be obtained in the office of the inspector of buildings, and bids must be made on such official form.

Heating Apparatus.—See "Electrical Equipment."

Heating Apparatus.—East Mississippi Insane Hospital will install new heating plant. Address Dr. J. M. Buchanon, Meridian, Miss.

Heating Plants.—C. P. Townsley, quartermaster, Fort Monroe, Va., will receive sealed proposals in triplicate until October 8 for installing hot-water heating plants in thirty-three buildings at Fort Monroe. Information furnished on application. Usual rights reserved.

Heating System.—White Furniture Co., Mebane, N. C., wants heating system for furniture factory and finishing rooms.

Hoisting Equipment.—Edward McDowell, 147 Ivy street, Atlanta, Ga., is in market for double-cylinder double-drum 12-horse-power hoist.

Hoisting Equipment.—Anthracite Machinery & Supply Co., Allentown, Pa., wants lot of hoisting rope and cables three-eighths to three inches in diameter, new or second-hand; fifteen, twenty and twenty-five horse-power gasoline engines, second-hand; dynamos, motors, wooden or iron tanks, 600 to 5000 gallons capacity; twelve horizontal slide-valve engines, ten to sixty horse-power; five hoisting engines, friction drums, pumps, rails, pipe, etc.

Hoop-making Machinery.—W. R. Craig, Columbia, Tenn., desires printed matter and prices on hoop-making machinery.

Laundry.—E. L. Hollis, No. 14 Planters' Bank, Americus, Ga., wants to correspond with parties having steam laundry for sale.

Laundry Machinery.—J. F. Banister, Cartersville, S. C., wants addresses of manufacturers of laundry machinery.

Lumbering Equipment.—Central Manufacturing Co., Roanoke, Va., is in market for second-hand traction engine from ten to fifteen horse-power.

Mattress Factory.—J. H. Marshall, Inez, N. C., wants equipments for mattress factory, including 12 or 15-horse-power engine and boiler; second-hand in good condition preferred.

Mill Supplies.—See "Flour Mill."

Mill Supplies.—Watts Bros. Manufacturing Co., Talladega, Ala., wants prices on felt roofing, sheathing paper, dry-kilns, shavings conveyor, veneering, etc.

Mining Equipment.—Queen Bee Mining & Milling Co., Lawton, O. T., will want complete equipment for mining gold, silver and copper. Address W. C. Moore of the company.

Mining Equipment.—Clarksville Anthracite Coal Co., Clarksville, Ark., is in market for complete hard coal mining equipment, including boilers, engines, scales, breakers, screens, conveyors, mine cars, cages, etc.

Oil-well Supplies.—T. H. Miller, secretary Thomas Oil & Gas Co., Blacksville, W. Va., will want prices on oil-well supplies and gas fixtures.

Quarrying Equipment.—Balfour Quarry Co., Asheville, N. C., wants full information and quotations on machinery for grinding and bolting talc. Complete plant will be wanted to handle from 1000 to 2000 pounds per hour.

Paving.—Wm. Yerger, city clerk, Greenville, Miss., will receive bids until October 6 for furnishing material and labor necessary to construct approximately 30,000 square yards of brick pavement, concrete foundation, and 10,000 linear feet stone curbing. Each bid must be accompanied by certified check for \$500. Plans and specifications are on file with city engineer. Contractors are invited to submit their own plans and specifications with sealed bid for same. Usual rights reserved.

Paving.—See "Sewers."

Planing Mill.—Strickland Bros., Cartersville, Ga., will want complete planing-mill equipment, and desire correspondence at once.

Plumbing and Wiring.—Philip Yost, quartermaster, Fort Caswell, N. C., will receive sealed proposals in triplicate until October 19 for constructing plumbing, heating and wiring guardhouse, hospital and one officers' quarters; constructing plumbing and wiring quartermaster workshop and three sets N. C. S. quarters at above post. Information furnished on application. Usual rights reserved.

Pulleys.—Baker, Stillwell & Hart, 421 Chaffoux Building, Birmingham, Ala., are in the market for four cast-iron pulleys 40-inch diameter, 10-inch face, 2 15-16-inch bore.

Pump.—John W. Hays, C. E., 3 South Adams street, Petersburg, Va., is in need of a steam pump of not less than 100 gallons capacity per minute.

Railway Construction.—Sealed proposals will be received at office of W. H. Bower, general manager Coal & Coke Railway Co., Elkins, W. Va., for the graduation and masonry, classified and unclassified, on about ten miles of single-track railroad from mouth of Open run, near Burnsville, Braxton county, West Virginia, to a point on Perkins fork of Cedar creek, including one 1100-foot tunnel. Plans and profile can be seen at general office, Elkins, or at office of A. A. Chapman, engineer, Weston, W. Va. Usual rights reserved.

Railway Equipment.—Alabama Consolidated Coal & Iron Co., T. G. Bush, president, Birmingham, Ala., is in market for saddle-tank dinkey engine, standard gauge, for beehive coke ovens; carry weights ten to twelve tons; drivers about thirty inches, with metallic cab.

Railway Equipment.—See "Hoisting Equipment."

Railway Equipment.—Nuckolls Coal & Coke Co., Pratt, W. Va., wants lot of steel rails. Address T. C. McVey.

Railway Equipment.—Stringfellow & Webster, Richmond, Va., are in the market for 75 to 100 tons of Grove girder rails about eight or nine inches deep, either new or re-layers; wants what is known as the Pennsylvania Section 258 or Cambria nine-inch Grove girder.

Road Machinery.—Jefferson City, Mo., needs a good second-hand gyratory rock crusher, capacity about 100 yards per day, also a porcupine scarifier or its equivalent for resurfacing macadam roads; J. C. Herring, city engineer. Also see under heading of "Sewers."

Seawall.—M. G. Spinks, captain artillery corps, constructing quartermaster, office depot quartermaster, U. S. A., Room 807 Equitable Building, Baltimore, Md., will receive sealed proposals in triplicate until September 29 for furnishing all material and labor required in the construction of a seawall at Fort Howard, Md. Information furnished on application and usual rights reserved.

Sewer Construction.—Bids are asked until September 15 for constructing about 10,250 feet of 8 to 12-inch pipe sewer; G. D. Heimick, city engineer; Chas. F. Shepherd, city clerk, Hannibal, Mo.

Sewers.—Jefferson City, Mo., will soon ask bids for 8 to 12-inch pipe for sewerage, for macadamizing and for brick or asphalt paving. J. C. Herring is city engineer.

Sewing Machinery.—See "Bag Machinery."

Shear.—Ollinger & Bruce Dry-Dock Co., Mobile, Ala., is in market for one power bar iron shear to cut one and one-quarter inches round, either new or second-hand.

Tank.—Capt. H. J. Stocum, constructing quartermaster, Postoffice Building, Chattanooga, Tenn., will receive proposals in triplicate until September 15 for constructing 200,000-gallon steel tank, etc., at Chickamauga Park, Ga. Information furnished on application. United States reserves usual rights.

Tank.—Rhode Island Company, Spry, N. C., is in market for 15,000-gallon steel tank on 50-foot trestle, erected.

Tanks and Pump.—See "Hoisting Equipment."

Traction Engine.—See "Lumbering Equipment."

Veneering.—See "Mill Supplies."

Woodworking Machinery.—Thornhill Wagon Co., Lynchburg, Va., wants to buy second-hand four-sided planer that will dress sixteen inches wide and three inches thick.

Wood-extract Plant.—F. Price, Newport, Ark., wants addresses of several manufacturers engaged in converting wood into alcohol, acetates, etc., by destructive distillation.

TRADE LITERATURE.

Cars, Hoisting Engines, etc.—Industrial activity finds uses for a large number of hoisting engines, derrick fittings, narrow and standard gauge cars in different types for various industrial purposes, rails and joints, frogs and switches, boilers and tanks, etc. Catalogue No. 110 of the New Jersey Foundry & Machine Co. gives a comprehensive idea of that class of equipment built at the company's extensive works. This new publication will be found to interest all buyers in the field indicated. Address the New York offices at 915 Murray street.

Nuttall Products.—These two words naturally remind one of gears. The Nuttall gears, motor pinions, standard trolleys, Union standard sheet cutters and other articles made by the R. D. Nuttall Co. of Pittsburgh, Pa., are well known. The company's facilities for the rapid and accurate production of gears are noted among users. It operates more than 100 gear-cutting machines, with a capacity from the smallest to thirty feet in diameter, comprising what is claimed to be the largest gear-cutting plant in the world. The company gives its undivided attention to this important branch of gear cutting. A booklet entitled "Nuttall Products" gives pertinent points to those who may be interested in this line of output.

Variable Speed Power Transmitters.—Variable speed countershafts or power transmitters that are compact, durable, practical and applicable to every class of work are in increasing demand with power-users and manufacturers. The occasions for transmitting power where a variation of speed is desired are numerous, and the uses of a practical power transmitter keep pace with them. The White Variable Speed Countershaft or Power Transmitter is easily and quickly adjusted to give any desired speed between the two extremes at which the machine is designed to run. It is illustrated and briefly described in a leaflet being issued

by the manufacturer, the Power & Speed Regulator Manufacturing Co., Ltd., Kalamazoo, Mich. The White transmitter is made in every class, size and style which the trade demands.

The International Cup Races.—Every American citizen is interested in the international yacht races, although he may not know the difference between a schooner and a catboat, and he wants to see the cup remain in America as a trophy of his countrymen's skill. The races of 1903 have again resulted victoriously for this country. A history of the causes bringing about the races is very interesting, and a complete story from their inception in 1851 to the present time is now being distributed by Messrs. I. B. Williams & Son of Dover, N. H. This little pamphlet tells the story in a most interesting manner, and is accompanied with illustrations of the America, Reliance and Shamrock III. Copies may be obtained on request to the Messrs. Williams, who are the well-known makers of oak-tanned leather belting, rawhide and tanned lace leather, etc.

A Brochure for Steam-Users.—A pound of coal mixed with a liberal proportion of steam engineering knowledge will often go as far as two pounds of coal without it. So says a brochure entitled "A Profitable Combination." This publication is issued upon the assumption that the steam-user into whose hands it might chance to fall is in business for the primary purpose of making money, and to further that aim is fully alive to any proposition having for its object greater economy in the operation of a steam plant. By having an equipment properly installed—all the numerous details being given especially attention by an experienced man—will enable the steam-user to obtain the maximum results for the minimum amount of money. If the power plant is already built, economies can be effected. Edgar C. Wiley, M. E., issues the booklet mentioned. His offices are in the Lynchburg National Bank, Lynchburg, Va.

Silico Calcareous Sandstone.—The manufacture of building bricks from quartz sand and lime is one of the new industries that is making rapid progress because of its inherent value. This industry is treated by expert knowledge in a publication of which the author is Ernst Stoffler, engineer, Zurich, Switzerland. "Silico Calcareous Sandstone" is the title. The chemical and technical principles of their manufacture, according to the situation, erection and management of brick works, is given thorough consideration. An extended notice of this publication has previously appeared in this column, and brief mention is here again given in the belief that many will be desirous of obtaining copies of the work. The Manufacturers' Record acknowledges the receipt of a copy from the Schwarze System Brick Co., 6, 8 and 10 Bridge street, New York. Messrs. Spon & Chamberlain, importers of scientific books, 12 Cortlandt street, New York, can furnish inquiries on the illustrated description of this valuable improvement to belt conveyors.

Mietz & Weiss Engines.—These engines were placed upon the market with a view to introducing a safe, simple and reliable prime mover. The Mietz & Weiss engines are built for operation by gas and by kerosene, and have found favor in many important industrial establishments. Although the expectation placed in the gas engine has been fully realized, the field of its application must necessarily be limited to the gas-house area. Because of this was introduced the kerosene engine, which has widened the field of application to the remotest corner of the globe. In catalogue A30, now being distributed, are presented reproductions of photographs of Mietz & Weiss gas and kerosene engines, and their application to various branches where they have been in constant operation for years with remarkable economy and durability. The working method of these engines is the same for either fuel, their construction differing only in the mechanism for injecting the fuel into the cylinder. Each engine receives at full power an impulse at each turn of the crank-shaft, i. e., the air and fuel injection, the compression and burning of the mixture and the expulsion of the exhaust are all performed at a single turn in a most direct and simple manner. A full description of these successful engines can be seen by a perusal of the catalogue. August Mietz, 126-138 Mott street, New York, builds the engines.

The Manufacture of Artificial Sandstone.—During several years past the manufacture of artificial sandstone or sand brick is a subject that has been attracting considerable attention. Because of this, scientific contributions regarding such manufacture find ready acknowledgment from those who are at present or likely to become interested in the young industry. In such an industry there are always many questions which are the occasion of a great deal of uncertainty both in selection of raw material and the machinery for manufacturing it. It was to settle as many of these questions as possible that S. B. Peppel, B. Sc., prepared "Further Contributions to the Manufacture of Artificial Sandstone or Sand Brick," which was read at the Boston meeting of the American Ceramic Society last February. Mr. Peppel was at the time special assistant Ohio geological survey, stationed at Columbus, but has now removed to 431 W. Main street, Louisville, Ky., where he is established as consulting chemist and engineer. His treatise regarding sandstone is a thorough one, and is accompanied by illustrations, diagrams and tables presenting valuable data regarding this important subject. Copies of the treatise can be obtained. The price is fifty cents.

Water Purification for Cities.—Water purification by mechanical and chemical treatment with sulphate of iron for domestic and commercial uses is the subject of a publication which presents the reports of Ernest E. Irons, bacteriologist, and James E. Campbell, chemical engineer and manufacturing chemist. To demonstrate the advantage of sulphate of iron in the purification of water, exhaustive tests were made by Messrs. Irons and Campbell. The water system at Quincy,

Ill., was the plant selected at which to make the test, because exacting conditions prevailed there. The most scientific research and experiment was conducted, and nothing was omitted that would contribute to this end. The result is most favorable to the employment of sulphate of iron for the purification of water. The reports are presented in a booklet issued by the American Steel & Wire Co. in inviting attention to the fact that sulphate of iron is one of its products. Requests for the publication are invited, and any further information can be obtained at any of the company's various offices. The Chicago offices are in the Rookery; New York offices at 71 Broadway, Empire Building; Cleveland offices in Western Reserve Building; St. Louis offices at 1935 Papin street, etc.

Economically Handling Material.—Conveying by means of belts was first applied more than fifty years ago, and is today in use with the various improvements and devices that modern ingenuity has produced as suggested from time to time by actual experience. Labor-saving machinery for economically handling any type of material in bulk or package is one of the specialties of present-day mechanical engineering, and American builders and erectors of this class of equipment are known for their success all over the world. The John A. Mead Manufacturing Co. of 11 Broadway, New York, is a specialist in conveying equipments, and is now issuing an interesting illustrated pamphlet telling about Ridgway's patent, something new in belt conveyors. The Ridgway Patent Conveying Belt provides for what is known to be the weak spot in such belts, and its construction is such as to give great tensile strength and reduce to a minimum wear and tear of the belt from the continued turning up of the edges. The Ridgway effects this by its flexible edges. The remark has been often made by those who have suffered from the wear and tear on their conveying belts at the bending points, "a perfect conveying belt should have its sides hinged," and this is just what the Mead Company claims to furnish. Inquiries are solicited for the illustrated description of this valuable improvement to belt conveyors.

Mietz & Weiss Engines.—These engines were placed upon the market with a view to introducing a safe, simple and reliable prime mover. The Mietz & Weiss engines are built for operation by gas and by kerosene, and have found favor in many important industrial establishments. Although the expectation placed in the gas engine has been fully realized, the field of its application must necessarily be limited to the gas-house area. Because of this was introduced the kerosene engine, which has widened the field of application to the remotest corner of the globe. In catalogue A30, now being distributed, are presented reproductions of photographs of Mietz & Weiss gas and kerosene engines, and their application to various branches where they have been in constant operation for years with remarkable economy and durability. The working method of these engines is the same for either fuel, their construction differing only in the mechanism for injecting the fuel into the cylinder. Each engine receives at full power an impulse at each turn of the crank-shaft, i. e., the air and fuel injection, the compression and burning of the mixture and the expulsion of the exhaust are all performed at a single turn in a most direct and simple manner. A full description of these successful engines can be seen by a perusal of the catalogue. August Mietz, 126-138 Mott street, New York, builds the engines.

Marine Refrigerating Machinery.—Machinery for marine use must be beyond the possibility of disabling accidents in so far, of course, as is possible by human accomplishment. At the same time probably no class of machinery is regularly placed in more experienced hands. These and all practicable conditions were constantly in mind with the Brown-Cochran Company in perfecting the details of its carbonic anhydride refrigerating machinery, with the result of complete success in many installations. Vessels thus equipped are giving the best possible results to owners and users in many waters, and that the carbonic anhydride system is entirely practicable under tropical conditions is seen in the fact that steamships fitted with it are carrying meat from Australia and South America across the equator to Europe. The system in reference is compact, light, simple, durable and strong, economical of power, and safe. A complete description of the marine refrigerating machinery of this type, designed and built at the Brown-Cochran works, is given in an illustrated pamphlet now being distributed, and which is mailed on request to individual firms or companies who think of in-

stalling plants for steamships, yachts or other vessels. The Brown-Cochran Company of Lorain, Ohio, issues the publication in the interest of its design and construction of carbonic anhydride equipments. It is prepared with experience and facilities to undertake any sort of machinery installation on shipboard, and will guarantee the perfection of its work and the satisfactory performance of the equipment's duties. New York offices at 26 Cortlandt street.

The Latest Street Sweeper.—Municipalities aim to promote cleanliness and health in every possible way. Probably the most familiar feature of such efforts is the cleaning of the streets. This operation is frequently before our eyes being done either by men with brooms or by machine broom street sweepers. Now the latter equipment has been greatly improved, and a machine to take its place entirely is being introduced. This latest street sweeper is known as the Cyclone Street Sweeper. It is horseless, broomless and dustless. No labor is required to pick up the dirt after it goes over the ground, and no water required to sprinkle the street in advance. This apparatus will effectively clean the street, and at the same operation will sweep, pick up and deliver the dirt into a suitable receptacle which it carries, and without in any manner distributing particles of dirt into the surrounding atmosphere. The machine will remove and pick up fine dust that a broom cannot gather. The sweeping, picking up and depositing are accomplished by a series of blasts. A complete description of the mechanism is presented in the prospectus of the company which will build and sell the machines. This is the Cyclone Street Sweeper Co., recently chartered with a capital stock of \$500,000, and having offices at Room 34, Manufacturers' Record Building, Baltimore, Md. Frederick W. Farquhar of Warren, Chatman & Farquhar, New York, is president; Wm. G. Menchine, secretary of the Infusorial Earth Manufacturing Co., Baltimore, is secretary, and Arthur O. Babendreher of the Baltimore city water department is treasurer, and Paul Igiehart, Baltimore's well-known commissioner of street cleaning, is one of the directors.

Something About Mattresses.—It is astonishing to note how slow inventors have been in improving sleeping arrangements, especially the beds themselves. Old-time bedsteads were elaborate affairs, frequently very expensive, but poor sleep producers, as the occupant had but little beyond hard wood to lay his weary body upon. (No wonder Hamlet was so melancholy or Richard the Third so bloodthirsty.) It was not so many years ago that the idea was conceived of using geese feathers, and ere long the feather bed was considered the full measure of luxury; then came the hair mattress, and this has been the best bed, although very expensive. This latter fact has been largely responsible for the production of other kinds of mattresses, one of which, the Hygienic Patent Perfection Mattress, has displaced both feathers and hair in thousands of homes, both in this country and in other countries. Over 75,000 have been sold. The Perfection is made of a high grade of clean lint cotton that is thoroughly cleansed, re-worked and made into one bat of proper length and width, the depth of which is about five feet. An even pressure is put on the bat, and it is brought down to a proper thickness. By the manufacturer's patented process the fiber of the cotton is not broken, but put in the mattress in such a way as to give the best effects of the resiliency of the staple. The mattress is not tacked or laced, but has a perfectly smooth surface, thereby making it absolutely dirt and vermin proof. It never requires remaking, and will improve with age, while an occasional sun bath has the same effect upon it as does reworking hair. The Perfection Mattress Co. at Birmingham, Ala., introduced and manufactures the mattress in question. This company has factories also at Baltimore, Md., and St. Louis, Mo., established because of the largely-increased trade developing in those sections. A leaflet giving full details regarding the mattress is ready for inquirers.

Frick's Twentieth Anniversary Greeting.—In the last previous issue of its catalogue the Frick Company presented a few facts which it thought would interest owners of refrigerating machinery. The remarks must have been appreciated, for the company this year celebrates its twentieth anniversary at the close of the most successful year's business it has ever enjoyed. Encouraged by past experience, the constant effort is to increase the efficiency of Frick machinery and methods, and facilities have been improved and extensive enlargements made, both in shops and office. By instituting such decided bot-

[Continued on Page 152.]

NINTH ANNUAL REPORT.

Macon, Ga., August 23, 1903.

To the Stockholders of the Georgia Southern & Florida Railway Company:
The President and Board of Directors submit the following report of the operations of the Company for the year ended June 30, 1903:

EARNINGS AND EXPENSES.				
	1903.	1902.	Increase.	Decrease.
From Freight.	\$95,839 92	\$762,839 85	\$193,000 07	
From Passenger.	434,918 15	367,901 49	67,016 66	
From Mail.	51,235 60	46,633 18	4,602 44	
From Express.	78,518 92	34,700 57	43,818 35	
From Miscellaneous.	114,678 45	38,800 89	75,877 56	
	<u>\$1,635,191 04</u>	<u>\$1,250,875 96</u>	<u>\$384,315 08</u>	
Expenses:				
For Conducting Transportation.	\$505,037 54	\$359,785 25	\$145,252 29	
For Maintenance of Way and Structures.	271,160 69	182,610 23	88,550 46	
For Maintenance of Equipment.	329,069 29	302,397 76	26,671 53	
For General Expenses and Taxes.	129,134 54	111,112 85	18,021 69	
	<u>\$1,234,402 06</u>	<u>\$965,906 09</u>	<u>\$278,495 97</u>	
Net Earnings from Operation.	<u>\$400,788 98</u>	<u>\$294,969 87</u>	<u>\$105,819 11</u>	
Ratio of Expenses to Earnings.	75.49%	76.42%	.93%	

This statement for 1903 includes the results of operation of the Atlantic, Valdosta & Western Railway for eight months ended June 30, 1903.

The main-line mileage operated at the close of the year was 391.61 miles, as compared with 285 miles at the close of the year preceding.

Income Account for the year is shown in detail in Table A, page 10.

Profit and Loss Account as of June 30, 1903, is shown in Table B, page 10.

There was an increase of \$10,109.22, or 22.8 per cent., in taxes paid for the year as compared with the year preceding.

FINANCIAL CONDITION.

The financial condition of the Company at the close of the year is shown in the balance sheet, Table C, page 11.

The Company has no floating debt, and has had none since its organization.

There were issued during the year \$2,000,000 of First Consolidated Mortgage Four Per Cent. Bonds and \$1,000,000 of Common Stock to pay for the Atlantic, Valdosta & Western Railway property.

EQUIPMENT OBLIGATIONS.

G. S. & F. Ry. Equipment obligations issued during the year.	\$360,000
Assumed during the year under purchase of Atlantic, Valdosta & Western Railway.	147,000
Total.	<u>\$507,000</u>
Of which there were paid during the year:	
G. S. & F. Ry. Equipment obligations.	\$18,000
A. V. & W. Ry. Equipment obligations.	63,000
Total paid.	<u>\$81,000</u>
Outstanding at close of the year.	<u>\$426,000</u>

DIVIDENDS.

Dividends were paid during the year as follows:

Two and one-half per cent. on First Preferred Stock, paid November 4, 1902.	\$17,100
Two per cent. on Second Preferred Stock, paid November 4, 1902.	21,680
Two and one-half per cent. on First Preferred Stock, paid May 5, 1903.	17,100
Two per cent. on Second Preferred Stock, paid May 5, 1903.	21,680
Total.	<u>\$77,560</u>

The Reserve Funds, which represent depreciation of property accrued, but not yet requiring renewal or replacement, now amount to \$165,794.39, as compared with \$39,004.11 at the close of the last fiscal year.

PURCHASE OF THE ATLANTIC, VALDOSTA & WESTERN RAILWAY.

On November 1, 1902, the Company acquired by purchase the property of the Atlantic, Valdosta & Western Railway Company, between Valdosta, Ga., and a point near Jacksonville, Fla., a total length of main line of 106.61 miles, and secured the perpetual right to use the terminals of the St. Johns River Terminal Company from said point into Jacksonville. The Company has also purchased one-eighth interest in the stock of the Jacksonville Terminal Company, which owns the Jacksonville Union Passenger Station.

NEW EQUIPMENT.

300 box cars and 100 flat cars of the new equipment referred to in the last annual report as having been contracted for under an equipment trust were delivered during the year, leaving undelivered on June 30th 40 coal cars and 25 stock cars.

BUILDINGS AND STRUCTURES.

An addition was made to the general office building in Macon, and new machinery placed in the shops at that point.

The depots at Bonaire, Dakota, Genoa, Grandin, Sycamore and Hahira were repaired or remodeled.

A new depot at Haylow was built jointly with the Atlantic Coast Line Railroad Company.

At Jasper a new water tank and section-houses were built.

New track scales were erected at Cordele and Tifton, and the warehouse at White Springs was enlarged and the depot platform extended.

CROSSTIES.

During the year there were placed in the track 120,909 crossties and 92 sets of switchties, in comparison with 116,049 crossties and 73 sets of switchties in the previous year.

EQUIPMENT ON HAND JUNE 30, 1903.

Locomotives.	44
Passenger-train Cars.	54
Freight-train Cars.	2548
Road-service Equipment.	13
Being, in comparison with previous year:	
Increase in Locomotives.	8
Increase in Passenger-train Cars.	9
Increase in Freight-train Cars.	79
Increase in Road-service Equipment.	2

MAINTENANCE OF EQUIPMENT.

During the year repairs were made to the following:

23 Locomotives,
45 Passenger Cars,
1223 Freight Cars.

On June 30 there were in the shops undergoing repairs:

33 Freight Cars,
3 Passenger Cars,
5 Locomotives.

MILEAGE.

Main Line, Macon, Ga., to Palatka, Fla.	285 miles.
Valdosta, Ga., to Grand Crossing (near Jacksonville, Fla.)	106.61
Total length of main line.	391.61
Side tracks.	59.938
Total length of tracks.	451.548

During the year 9.69 miles of 75-pound rail were laid, making total length of track relaid with 75-pound rail 110.137 miles.

4.63 miles of side tracks were built during the year.

During the year there was marked progress in the development of the territory traversed. There has been quite an addition to the population by settlers opening up new farms, and the outlook for further immigration is encouraging.

Acknowledgments of the Board are due to all officers and employees for the faithful discharge of their duties during the year.

By order of the Board.

Respectfully submitted,

SAMUEL SPENCER,
President.

A.—INCOME ACCOUNT FOR THE YEAR ENDED JUNE 30, 1903.

To Operating Expenses and Taxes:

Conducting Transportation.	\$505,037 54
Maintenance of Way and Structures.	271,160 69
Maintenance of Equipment.	329,069 29
General Expenses.	74,807 47
Taxes	54,327 07
	<u>\$1,234,402 06</u>

Fixed Charges:

First Mortgage Bonds, \$3,801,000 at 5 per cent.	\$190,050 00
First Consolidated Mortgage Bonds, \$2,000,000 at 4 per cent. for eight months	53,333 33

Interest on Car-Trust Notes:

G. S. & F. Ry. Equipment Trust:	
Six months at 4½ per cent. on \$360,000, less adjustment of interest in connection with advances made.	\$4,819 73
Four months at 4½ per cent. on \$342,000.	5,130 00
	<u>\$9,949 73</u>
A. V. & W. Ry. Equipment Trust:	
Six months at 6 per cent. on \$126,000.	\$3,780 00
Six months at 6 per cent. on \$105,000.	3,150 00
One month at 6 per cent. on \$84,000.	420 00
	<u>7,350 00</u>

Dividends:

No. 11, on First Preferred Stock, 2½ per cent. paid November 4, 1902.	\$17,100 00
No. 12, on First Preferred Stock, 2½ per cent. paid May 5, 1903.	17,100 00
No. 8, on Second Preferred Stock, 2 per cent. paid November 4, 1902.	21,680 00
No. 9, on Second Preferred Stock, 2 per cent. paid May 5, 1903.	21,680 00
	<u>77,560 00</u>
Balance carried to credit of Profit and Loss.	77,333 18
	<u>\$1,649,983 30</u>

B.—PROFIT AND LOSS ACCOUNT FOR THE YEAR ENDED JUNE 30, 1903.

Balance to credit of this Account July 1, 1902.

Add Credit Balance of Income Account for year 1903.

Balance to credit of this Account June 30, 1903.

C.—CONDENSED BALANCE SHEET, JUNE 30, 1903.

ASSETS.

Cost of Road and Equipment:	
Cost of Road—Previous report.	\$5,861,782 33
Additions during year—Cost of Roadway and Appurtenances of Atlantic, Valdosta & Western Railway.	3,929,076 63
Cost of Real Estate at Valdosta, Ga.	550 00
	<u>5,929,926 63</u>
Deductions during year—Credit Balance transferred from books of G. S. & F. R. R. (Old Company) after final adjustment of all accounts.	\$36,971 01
Muniment of Title to Stock of A. V. & W. Ry. Co.	1 00
	<u>36,972 01</u>

Cost of Equipment—Previous report.	\$77,570 71
Additions during year—Cost of Equipment received with A. V. & W. Ry.	55,675 00
	<u>\$133,245 71</u>
Deductions during year—Value of two locomotives and one steam shovel sold.	8,400 00
	<u>\$114,845 71</u>

Total Cost of Road and Equipment.	\$9,583,582 66
Securities Owned.	250,456 10
Material and Supplies on Hand:	
Contents of Storeroom and Commissary.	\$79,363 85
Rail and Fixtures—Current.	14,504 84
	<u>\$94,868 69</u>
Rail—Leased.	346,000 00
G. S. & F. Ry. Trust Equipment.	346,000 00
A. V. & W. Ry. Trust Equipment.	34,000 00
	<u>480,000 00</u>
Sundry Accounts.	15,448 50

Cash in hands of Treasurer.	\$261,508 82
Cash in hands of Financial Agents for payment of interest and unpaid dividends.	97,776 00
Cash in transit from Agents.	34,223 58
Due from Agents and Conductors.	15,331 12
Due from U. S. Government (Mail).	13,384 21
Due from Southern Express Co.</td	

MANUFACTURERS' RECORD.

[September 10, 1903.]

Capital Stock:	LIABILITIES.
Common	\$2,000,000 00
First Preferred	684,000 00
Second Preferred	1,084,000 00
	\$3,768,000 00
Funded Debt:	
First Mortgage Bonds	\$1,000,000 00
Less—	
Amount in reserve for future improvements	\$162,000 00
Amount in Treasury of Company	37,000 00
	199,000 00
Outstanding	\$3,801,000 00
First Consolidated Mortgage Bonds	2,000,000 00
	5,801,000 00
Equipment Obligations:	
G. S. & F. Ry. Equipment Trust	\$312,000 00
A. V. & W. Ry. Equipment Trust	84,000 00
	426,000 00
Taxes Accrued, Not Due	29,400 00
Interest on Car-Trust Notes Accrued, Not Due	5,550 00
Reserve Funds:	
For Maintenance of Way and Structures	\$85,996 98
For Maintenance of Equipment	75,797 41
Miscellaneous	4,000 00
	165,794 39
Current Liabilities:	
Interest on Bonds due and unpaid, including amount due July 1, 1903	\$97,250 00
Dividends due and unpaid	526 00
Audited Vouchers	53,540 09
Pay-rolls (June)	48,629 65
Wages uncalled for	3,576 86
Due other Transportation Companies	8,232 57
Profit and Loss	212,055 17
	465,998 49
	\$10,874,799 05

II.—TRAFFIC STATISTICS, YEARS ENDED JUNE 30, 1903 AND 1902.
(Including Operations of the Atlantic, Valdosta & Western Railway for Eight Months from November 1, 1902.)

	1903.	1902.	Per cent. of increase or decrease.
Average miles of road operated	358.33	285	Incl. 25.73
Passenger Traffic:			
Number of passengers carried	476,207	438,407	Incl. 8.62
Number of passengers carried one mile	17,442,236	14,451,175	Incl. 20.70
Average distance per passenger	36.63	32.96	Incl. 11.13
Total revenue from passengers	\$434,918.15	\$367,901.49	Incl. 18.22
Average receipts per passenger per mile .....	.02.49	.02.54	Dec. 1.97
Total passenger-train earnings	\$568,908.42	\$452,335.22	Incl. 25.77
Passenger-train earnings per mile of road	\$1,587.67	\$1,587.14	Incl. .03
Passenger-train earnings per train mile .....	.57.13	.72.06	Incl. 20.91
Freight Traffic:			
Number of tons carried	859,639	743,849	Incl. 15.57
Number of tons carried one mile	79,205,649	66,369,659	Incl. 19.34
Average distance hauled per ton	92.128	89.224	Incl. 3.27
Total freight earnings	\$655,839.92	\$762,839.85	Incl. 25.30
Average receipts per ton per mile .....	.01.206	.01.149	Incl. 4.96
Freight earnings per mile of road	\$2,667.48	\$2,676.63	Dec. .34
Freight earnings per train mile .....	.22.12	.32.67	Incl. 16.72
Earnings and Expenses:			
Passenger and freight earnings	\$1,524,748.34	\$1,215,175.07	Incl. 25.48
Passenger and freight earnings per mile of road	\$45,255.15	\$42,263.77	Dec. .20
Gross earnings	\$1,635,191.04	\$1,250,875.96	Incl. 30.72
Gross earnings per mile of road	\$1,563.37	\$1,389.03	Incl. 3.97
Gross earnings per train mile	151.215	137.111	Incl. 10.29
Operating expenses and taxes	\$1,231,402.06	\$955,906.09	Incl. 29.13
Operating expenses and taxes per mile of road	\$3,444.87	\$3,354.05	Incl. 2.71
Operating expenses and taxes per train mile	114.152	104.777	Incl. 8.95

[Continued from Page 150.]

FINANCIAL NEWS.

terms the company aims to maintain its position in the front rank of ice and refrigerating machinery manufacturers. In endeavoring to make familiar the Eclipse system of ice-making and refrigerating machinery this company's latest book is compiled, and endeavors are made to cover the ground in a chatty manner. Technicalities are avoided as much as possible, and everything is aimed to be so clear that "he who runs may read." The publication deserves especial commendation because of the clear and concise manner in which the theory and practice of ice manufacture and refrigeration is explained and for the numerous photographic reproductions of the complete machines and parts of machines used in installing Eclipse plants, many of the devices being original with and used only by the Frick Company. Those who may contemplate engaging in the conduct of an ice-making or refrigerating plant will find it to their advantage to talk over this subject with the Frick Company before entering into any contract. In estimating upon the cost of complete establishments the company gives thorough consideration to every detail, and plans to supply equipment that will afford the best possible results at the minimum expenditure consistent with highest-grade service. The machines are strong, durable, economical, convenient, symmetrical, and built on the interchangeable system. Through the company's method of keeping records each part of a plant sold is so tabulated that when orders come for parts, if they are not in stock, which may happen at times, it is possible to make them and assure a perfect fit. In order to accommodate prospective customers and facilitate business various agencies have been established under the management of competent engineers who are ready to furnish information, prices and other details to prospective purchasers. No individual or company contemplating the establishment of ice or refrigerating plants can afford to fail securing for careful perusal a copy of the "Twentieth Century Anniversary Greeting," copies of which may be obtained by addressing the Frick Company at its main offices and works, Waynesboro, Pa. Offices at Dallas, Texas, are in the Gaston Building; in Nashville, Tenn., at 604 Broad street; in St. Louis, Mo., at 514 Granite Building; in New York at 39 Cortlandt street.

Review of the Baltimore Market.

Office Manufacturers' Record,

Baltimore, Md., September 9.

A double holiday and a dull season combined to rob the Baltimore stock market of both activity and interest during the past week. Everything was flat. In the dealings United Railways common sold from 11 down to 10%, and then reacted; the preferred at 30%, the incomes at 63% to 63½, the 4s at 90%; Consolidated Gas at 64½ to 65%, Gas 5s at 107%; Seaboard 4s at 77½ and 77¾, and the 5s at 101½ and 102; G.-B.-S. Brewing incomes at 32, and the 1sts at 47½ and 48.

Other securities traded in were as follows: Bank of Commerce, 28; Continental Trust, 183; Manufacturers' Bank, 103; Merchants' Bank, 188; Northern Central, 99%; Atlantic Coast Line Consolidated 4s, 90%; West Virginia Central 6s, 110; Virginia Midland 2ds, 110; Georgia & Alabama Consolidated 5s, 105½; National Enameling common, 25%; Virginia Century, 90; Georgia Southern & Florida 5s, 110; Virginia new 3s, 89½; Atlanta Street Railways 5s, 104%; Lexington Street Railway 5s, 100; Southern Railway common, 23; Baltimore Fire Insurance, 21.

SECURITIES AT BALTIMORE.

Last Quotations for the Week Ended September 9, 1903.

Railroad Stocks.	Par.	Bld.	Asked
Atlanta & Charlotte	100	150	...
Georgia Southern & Florida	100	48	60
Georgia Sou. & Fla. 1st Pref.	100	96	97
Georgia Sou. & Fla. 2d Pref.	100	67	76

TABLE OF CONTENTS.

EDITORIAL:	Page.
The Burden of Vagrancy	131
Working for the South	131
The Southern Cotton Industry	131
Where the Negro Problem Is to Be Wrought Out	132
The Cotton Outlook	132
A Notable Development	132
For Investors in Clay	132
Launch of the Cruiser Maryland	133
Galveston's Pluck Rewarded	133
Labor for the Rice Fields	133
Montgomery's Power Equipment	133
Basis of Houston's Growth	133
Manufacturer Wants Location	133
Tennessee Phosphates	133
Prosperity of the South	133
The Texas-Louisiana Oil Fields	134
For the Expansion of America's Coal Trade	135
A \$10,000,000 Coal Company	135
Cotton in Texas	135
American Cotton Crop in 1902-1903	136
Progress of the New Transcontinental Line (Illus.)	138
Stillwell a Director	139
Pipe Line Completed	139
The Birmingham District	139
The Iron and Metal Trades	139
Big Kentucky Coal Project	139
Anniston Pig-Iron	139
RAILROADS:	
An Electric Coal Road	140
Will Extend to Clintwood	140
Memphis & Gulf	140
St. Louis, El Reno & Western	140
Entrance to New Orleans	140
Will Build a Big Dam	140
New Mexico to Texas	140
Coal & Coke Extension	140
Railroad Notes	140
TEXTILES:	
A \$500,000 Mill Completed	140
Greensboro's Latest Mill	140
Textile Notes	140
Quotations of Cotton Yarns	141
Cottonseed-Oil Notes	141
PHOSPHATES:	
Phosphate Markets	141
Phosphate and Fertilizer Notes	141
LUMBER:	
Lumber Market Reviews:	
Baltimore	142
Brunswick	142
Pensacola	142
Mobile	142
Memphis	142
Lumber Notes	142
MECHANICAL:	
A Loose-Pulley Lubricator (Illus.)	143
A Brewery's Electrical Equipment (Illus.)	143
No. 57 Band-Saw Mill (Illus.)	143
Dust-Collecting Systems	144
Trade Notes	144
CONSTRUCTION DEPARTMENT:	
New Enterprises	145
Building Notes	147
Railroad Construction	148
Machinery Wanted	149
Trade Literature	150
FINANCIAL NEWS:	
Review of the Baltimore Market	152
Securities at Baltimore	152
Southern Cotton-Mill Stocks	152
American Bankers' Convention	28
Georgia Southern & Florida	28
New Corporations	28
New Securities	29
Financial Notes	29
The Bank of Wynne has been incorporated at Wynne, Ark.; capital \$30,000. The incorporators are O. N. Killough, president; J. L. Hare, vice-president; T. A. Bradford, Jr., secretary; W. H. Barnes, cashier; W. W. Shaver, W. Smith, M. E. Killough, J. W. Killough, F. E. Cary, D. F. Hall, W. S. Coffin, F. B. Rolfe, N. B. Martin, Mayo & Robinson, G. W. Eldridge, J. Ed Wilson, McDonald Bros., J. O. Minton, W. A. Dickey, J. T. Patterson, J. J. Ogg, Fredericktown Trust Co., Mrs. Anna Gailey and Wes Hall.	
Gonzales, Texas.—The city has sold \$7000 of street bonds and \$8000 of fire-department bonds.	
The Drovers and Mechanics' National Bank of Baltimore has been appointed a reserve agent for the National Bank of Commerce of Norfolk, Va.	
For Additional Financial News, See Pages 28 and 29.	

Hambleton & Co.**BANKERS and BROKERS,**

Members New York and Baltimore Stock Exchanges.

17 S. Calvert St., BALTIMORE.

High-grade Investment Bonds, Municipal, Rail-way, Industrial.

Letters of Credit Available Everywhere.

CONDENSED STATEMENT OF THE First National Bank of Richmond, Va.

JUNE 9, 1908.

RESOURCES.

Loans and Discounts	\$1,561,733.73
U. S. Bonds at par	612,500.00
Overdrafts	40.75
Other Stocks and Bonds	412,697.78
Banking House and other Real Estate	60,743.73
Cash and Due from Banks	908,596.70
	\$5,042,521.60

LIABILITIES.

Capital	\$200,000.00
Surplus and Profits (net)	\$52,340.66
Reserved for Interest	7,058.72
Circulation	503,600.00
Deposits	3,250,023.51
U. S. and Va. Bond Account	408,500.00
	\$5,042,521.60

Calvin N. McAdoo

Banker and Broker,

GREENSBORO, N. C.

MEMBER

New York Cotton Exchange.

New Orleans Cotton Exchange.

Consolidated Stock Exchange.

Private Wires to all Exchanges.

Southern Securities a Specialty.

Jacob Phinney, Pres. Chas. G. Goodrich, Cash.
Hamilton H. Hickman, Vice-Prest.**Georgia Railroad Bank,**

AUGUSTA, GA.

Capital, \$200,000.00 Undivided Profits, \$201,585.63
Commenced Business December 31, 1892.

Members Baltimore Stock Exchange.

J. WM. MIDDENDORF & CO.
BANKERS AND BROKERS,

Continental Trust Bldg.

Baltimore, Md.

Stocks and Bonds Bought and Sold on Commission. Special attention given to Municipal and other Investment Loans. Dealers in Foreign Exchange. Drafts on Europe and Letters of Credit furnished. Private Wires to New York and Richmond.

**MANILA
SISAL ROPE
JUTE****THE AMERICAN MFG. CO.**

65 Wall Street New York

**"AMERICAN" TRANSMISSION
ROPE**

"A LITTLE BLUE
BOOK ON ROPE
TRANSMISSION"
SENT FREE.

of Ropes

Merchants' & Farmers' Nat. Bank

CHARLOTTE, N. C.

Capital, \$200,000. Surplus and Profits, \$75,000.

Prompt and intelligent attention to all business intrusted to us. Correspondence invited.

Dr. J. H. McAden, Pres. Geo. E. Wilson, V. Pres.
C. N. Evans, Cash. W. C. Wilkinson, Asst. Cash.
N. Y. Correspondent:

SEABOARD NATIONAL BANK.

**JOHN L. WILLIAMS & SONS,
BANKERS,**

RICHMOND, VA.

Dealers in Southern Investment Securities

MUNICIPAL BONDS A SPECIALTY.

Correspondence Invited.

**EDWARD H. THOMSON & SONS,
Bankers and Brokers,**

BALTIMORE.

Members of Baltimore Stock Exchange.

Dealers in High-Class Securities.

Collateral Loans Negotiated.

**Hugh MacRae & Co.
Bankers,**

MISCELLANEOUS SOUTHERN SECURITIES,

COTTON MILL STOCKS

WILMINGTON, N. C.

WASHINGTON, D. C. (Kellogg Building.

American Bankers' Convention.

The program for the annual convention of the American Bankers' Association, which is to be held in San Francisco from October 20 to October 23, inclusive, is in course of preparation. Particular interest will attach to the report of the special currency committee appointed at last year's convention. The report is not expected to be completed until very near the date of the convention. One of the features of the convention will be a special meeting of the trust-company section, and the savings-bank representatives will also hold a meeting to discuss subjects of peculiar interest to such institutions.

In reviewing the work of the association in his recent report Secretary Branch says:

"We can positively assert that professional criminals are selecting for attack banks not members of this association. Out of a membership of nearly 7000 there have been eighty-five attacks on our members since 1895, resulting in a total loss of \$70,526.51. In the same space of time 553 non-members have been attacked, resulting in a loss of \$697,383.11. Besides our protective feature, energetic, active and watchful committees are working on the subjects of 'Education of Bank Clerks' and 'Uniform Laws.' Owing to the work of our fidelity committee our members are receiving annually a reduction of \$150,000 on their fidelity bonds."

Since September 1, 1902, the association has increased by 741 banks, making now a total paid membership of 6921.

Georgia Southern & Florida.

The ninth annual report of the Georgia Southern & Florida Railway for the fiscal year ended June 30, 1903, shows earnings \$1,635,191, increase \$384,315; expenses \$1,234,402, increase \$278,495; net earnings from operation \$400,788, increase \$105,819; ratio of expenses to earnings 75.49 per cent., decrease .93 per cent. This statement for 1903 includes the results of operation of the Atlantic, Valdosta & Western Railway for eight months ended June 30. The main line operated at the close of the year was 391 miles, as compared with 285 miles at the close of the preceding year. The company has no floating debt. During the year \$2,000,000 of first consolidated mortgage 4 per cent. bonds and \$1,000,000 of common stock were issued to pay for the Atlantic, Valdosta & Western Railway. The fixed charges paid during the year amounted to \$243,383.33, divided as follows: Interest on 5 per cent. first mortgage bonds, \$190,050; interest on 4 per cent. first consolidated mortgage bonds (\$2,000,000 for eight months), \$53,333.33. There was also paid interest on car-trust notes amounting to \$17,299.73 and dividends on first and second preferred stock amounting to \$77,560, leaving a balance carried to credit of profit and loss \$77,338.18. The total balance to credit of profit and loss is thereby increased to \$466,999.49.

New Corporations.

The Citizens' Bank has begun business at Maury City, Tenn.

The Bryan County Bank has begun business at Pembroke, Ga.

The Bank of Carteret has begun business at Morehead City, N. C.

It is reported that a bank will be established at Tolar, near Granbury, Texas; capital \$50,000.

The People's Bank of Sebree, Ky., capital \$20,000, has been incorporated by H. C. Bailey, J. B. Ramsey, W. I. Smith and others.

The Merchants' National Bank will, it

is reported, be organized at Brownsville, Texas, by J. G. Fernandez of Columbus, Texas, and others.

The Bank of Leakesville at Leakesville, Miss., capital \$50,000, has been chartered by E. F. Ballard, J. H. Turner, S. R. McKay and others.

The Bank of Quitman has begun business at Quitman, Ark. J. M. Jenkins is president; C. W. Martin, vice-president, and R. L. Kane, cashier.

The Bank of Auburn at Auburn, Tenn., capital \$10,000, has been incorporated by H. E. Potter, D. D. Overall, B. W. Robinson, H. L. Overall and W. H. Overall.

The First National Bank of Frost, Texas, capital \$25,000, has been organized by J. L. Halbert, N. F. Drain and Chas. H. Mills of Corsicana, G. J. Heflin and C. B. Hightower.

The Bank of Piedmont, S. C., has received its commission; capital \$15,000. The incorporators are W. A. Simpson, W. H. Hammett, Joseph Norwood and James L. Orr.

The First National Bank of Canton, Miss., capital \$50,000, has organized by electing W. B. Weiner president; J. J. McGrath, vice-president, and Mr. Flounoy, secretary and treasurer.

The Bank of Henry, capital \$50,000, has begun business at Abbeville, S. C. The officers are Dr. Albert S. Stegall, president; Hon. John B. Ward, vice-president, and N. F. Chaeirs, cashier.

The First National Bank of Taloga, O. T., capital \$25,000, has been approved. The organizers are J. C. Strang, Guthrie, O. T.; George E. Block, F. L. Block, M. Shultise and John Bosworth.

The First National Bank of Excelsior Springs, Mo., has been approved; capital \$25,000. The organizers are C. S. Jobes, William A. Wilson, E. L. Morse, W. Y. Morgan and G. B. Gray.

The Citizens' Banking Co. has been organized at Dublin, Ga.; capital \$50,000. Among the charter members are E. P. Rentz, William Pritchett, J. D. Smith, C. W. Brantley and J. H. Beacham.

The St. Louis Securities Co., capital \$100,000, has been incorporated in St. Louis, Mo., by James B. Goode, Joseph Flory, H. M. Whitney, J. T. Lynn, W. T. Hess, G. O. Rogers and F. M. Estes.

The Jefferson Insurance Co., a private banking incorporation in Texas, has changed its name to the First State Bank, with principal office at Hillsboro, Texas; capital \$100,000. It may establish branches.

The Concord Banking Co., capital \$25,000, has been organized at Concord, Ga. The directors are C. T. Smith (president), R. A. Mallory (vice-president), G. E. Strickland (cashier), R. C. Mathews and R. E. Lee.

The Liberty Banking Co. of Hinesville, Ga., has applied for a charter; capital \$25,000. The incorporators are L. Carter of Wayne county, N. McQueen, H. P. Remis, J. R. Ryan and J. M. Caswell of Liberty county.

The Bank of Commerce, capital \$50,000, has been chartered at Louisville, Miss. Parties connected with the Merchants and Farmers' Bank of Macon, Miss., and New York and Cincinnati capitalists are interested.

An insurance company has been organized at New Castle, Ky.; guarantee fund \$70,000. The officers are Judge William Carroll, president; I. W. Kelley, vice-president; S. J. Douthitt, secretary, and W. W. Turner, treasurer.

The Mabry Securities Co. has been incorporated at Selma, Ala., to conduct a general business in real estate and brokerage; capital \$100,000. The incorporators are R. H. Mabry, Roger Jones, E. C. Melvin and W. N. Thompson.

The National Bank of Middlesborough

FISK & ROBINSON**BANKERS****Government Bonds**

and other

Investment Securities

MEMBERS NEW YORK STOCK EXCHANGE

36 CEDAR STREET 28 STATE STREET
NEW YORK BOSTON**WHEN ABOUT TO
INCORPORATE**

Write for fourth edition of
"Pointers on Delaware Cor-
poration." Official forms,
estimates of cost and copies
of the amended law.

DELAWARE TRUST COMPANY

WILMINGTON, DELAWARE.

HENRY W. THOMSON,
Spartanburg, S. C.
STOCK AND BOND BROKER,
Southern Cotton-Mill Stocks a Specialty.
CORRESPONDENCE SOLICITED.**J. P. HORNADAY & CO.**
**Electric Railway, Water Works, Light,
Traction, Industrial and Mineral Properties
Bought and Sold.**
Suite No. 1108 Traction Bldg. CINCINNATI.**SURETY BONDS.****Fidelity and Deposit Co.**
OF MARYLAND.
Home Office, - BALTIMORE, MD.

Assets Over \$5,000,000.

Pioneer Surety Co. of the South.
Becomes Surety on Bonds of every description.

AGENTS IN ALL PRINCIPAL CITIES.
HARRY NICODEMUS, EDWIN WARFIELD,
Sec'y and Treas. President.

Guaranteed Storage Receipts Issued

For property stored on your own premises or in Public Warehouses. Also for Property stored in the warehouses of this Company.
All Receipts GUARANTEED by the FIDELITY & DEPOSIT CO. of Md

A HIGH CLASS COLLATERAL—Accepted in all money markets.

Baltimore Fidelity Warehouse Co.
BALTIMORE, MARYLAND.

ALBERT G. OBER, President.
T. E. WITTERS, Sec'y. & Mgr.
THOS. L. BERRY, Treasurer

AGENCIES:
Equitable Trust Company, Augusta, Ga.
American Trust & Banking Co., Atlanta, Ga.
Other agencies will be established where needed.
Correspondence solicited.

APPRAISAL & AUDIT CO. OF AMERICA.
Teutonic Bldg., CHICAGO.

Audits and Examinations of Books and Accounts. Deviser of Successful Accounting Systems. Appraisers of all classes of Property. Plans and Specifications of Buildings and Machinery. Send 10c. in stamps for book, "SYSTEM OF APPRAISAL & AUDIT."

WE FINANCE AND BUILD

Electric Railways, Power Stations, Water Powers, etc., etc.

WE BUY

Railway Charters and Franchises, ALSO Small Issues of Railway, Mining and Industrial Bonds.

Correspondence Solicited.

The Mechanics Electric Co.
170 Summer St., BOSTON, MASS.

P. O. Box 1157.

THE AUDIT COMPANY OF NEW YORK***EXAMINATIONS.****APPRAISALS.****AUDITS.**

Investigations for Financing and Underwriting
and for Reorganization Committees.

New York,
Mutual Life Building, 43 Cedar Street.
Chicago,
New York Life Building.

Philadelphia,
Arcade Building.

Mess
in inve

at Middlesborough, Ky., has been approved; capital \$50,000. The organizers are R. C. Ford, Middlesborough; Emil S. Helburn, J. Goodfriend, C. N. Miller, C. M. Woodbury, Ray Moss and others.

The First National Bank of Hughes Springs, Texas, has begun business. The directors are C. H. Morris, president; W. B. Duncan and T. B. Kessler, vice-presidents; J. M. Mitchell, cashier; P. W. Goodson, J. M. Murphy and J. G. Hussey.

A new bank is reported as being organized at Stanton Depot, Tenn.; capital \$15,000. Those interested are J. G. Rawlins, president; Howell Taylor, vice-president; J. H. Gibson, cashier; J. Y. Barbee, L. C. Newman, W. B. Nash, J. C. Holland and W. J. Coppedge.

The Laurel National Bank has begun business at Laurel, Miss.; capital \$100,000. It has purchased the People's Bank. The directors are Ed D. Peirce, L. L. Denison, S. H. Floyd, T. G. McCallum, S. W. Lindsey, F. M. Sheppard and C. M. McDonald; Ed D. Peirce, president, and C. M. McDonald, cashier.

The Merchants and Planters' Bank, capital \$15,000, has been organized at Silver Creek, Miss., with the following officers: F. F. Becker, president; D. C. Griffith, vice-president; R. L. Longino, cashier. The directors are F. F. Becker, D. C. Griffith, R. L. Longino, William Ross, J. W. McGrath, L. Cohn and A. T. Longino.

The Bank of Honea Path has been organized at Honea Path, with the following board of directors: R. M. Shirley, James D. Hammen, J. R. Wright, J. F. Shirley, L. O. Harper, J. Q. West and W. A. Erwin; capital \$25,000. The officers are: R. M. Shirley, president; James D. Hammett, vice-president; T. R. Finley, cashier.

The Life & Casualty Insurance Co. of Tennessee has been organized at Nashville. The charter states the capital is \$25,000. It will succeed to the business of the Traders' Life Insurance Co. of Illinois, and the officers are A. M. Burton, president; Guilford Dudley, vice-president; A. L. Haralson, secretary; J. C. Franklin, treasurer, and P. M. Estes, chief counsel.

New Securities.

Greensboro, N. C.—Guilford county will soon sell \$300,000 of good-roads bonds.

Hawkinsville, Ga.—An election will be held September 14 to vote on bonds for water-works and sewers.

Austin, Texas.—The State board of education has purchased \$14,000 of Medina county bridge bonds.

Macon, Ga.—The city will, it is reported, soon hold an election to vote on an issue of \$20,000 of town-hall bonds.

Muskogee, I. T.—The Territorial Bank & Trust Co. has purchased \$80,000 of 5 per cent. school bonds issued by Muskogee.

Memphis, Tenn.—The Memphis Trust Co. has purchased \$75,000 of school bonds from the city at a premium of nearly 1 per cent.

Nashville, Tenn.—The city has sold the last of its \$200,000 of 4 per cent. special street and sewer bonds to Farson, Leach & Co. of New York, who took \$179,000 of the bonds, the rest being taken by local capitalists.

Atlanta, Ga.—It is announced that the city has sold all of its \$200,000 of bonds to be issued this year. The sinking-fund commission will take \$97,000, while \$60,000 will go to local banks; \$20,000 will be taken by companies furnishing the city pipe, and \$23,000 will be taken by a syndicate.

Financial Notes.

Messrs. J. P. Hornaday & Co., dealers in investment securities, have taken an

office in the new Traction Building, Cincinnati.

The third annual convention of the South Carolina Bankers' Association is to be held at Columbia on October 6 and 7.

The Orleans levee board at Baton Rouge, La., called in for redemption on September 1 \$100,000 of its 5 per cent. bonds, and has already paid off \$75,000 worth.

Tour to the Pacific Coast via Pennsylvania Railroad, Account Meeting National Bankers' Association.

On account of the meeting of the National Bankers' Association, to be held at San Francisco, Cal., October 20 to 23, the Pennsylvania Railroad Co. offers a personally-conducted tour to the Pacific coast at remarkably low rates.

This tour will leave New York, Philadelphia, Baltimore, Washington and other points on the Pennsylvania Railroad east of Pittsburgh, Wednesday, October 14, by special train of the highest grade Pullman equipment. A quick run westward to San Francisco will be made via Chicago, Omaha, Cheyenne and Ogden.

Five days will be devoted to San Francisco, allowing ample opportunity to visit the nearby coast resorts. Returning, stops will be made at Salt Lake City, Colorado Springs, Denver and St. Louis. The party will reach New York on the evening of October 31.

Round-trip rate, covering all expenses for eighteen days, except five days spent in San Francisco, \$190.

Rates from Pittsburgh will be \$5 less.

For full information apply to ticket agents or Geo. W. Boyd, general passenger agent, Broad Street Station, Philadelphia, Pa.

World's Fair Station.

In view of the fact that many thousands of people will travel to St. Louis over the Wabash Railroad, it is interesting to remark the facilities provided by this road. The Wabash has definitely determined upon the plans for a large station and terminal at the approach of the exposition. The Wabash road will build a station with 300 feet of frontage on a grand entrance plaza 400x700 feet which the exposition will maintain at the main gateway at Lindell and De Baliviere avenues. The plaza will be cut off the end of the Catlin tract, on which the Pike is to be located. A subway 200 feet wide will carry streetcar passengers under the main tracks of the Wabash where they cross De Baliviere avenue at Forsyth Junction. The tracks will be elevated at this point. At no point near the main gateway of the World's Fair will different kinds of traffic cross on the same level. Fifteen spur tracks will leave the Wabash main line 1500 feet east of De Baliviere avenue, and, entering the eastern portion of the Catlin tract at that point, will run directly into the station by the interlocking system. Provision has been made in the trackage plans to assure the unloading or loading of at least 50,000 passengers every day. Excursion trains will enter and leave the terminal spurs on the same track. The Wabash main line will carry four tracks for the entire distance along the north front of the exposition. Through trains will stop at platforms along the main tracks on the north side of the leased tract and in the immediate proximity to the World's Fair station.

Buffalo Courier, July 27, 1903.

New York City Excursion, \$5 Round Trip, Through the Deerfield Valley, Down the Hudson River, October 1, via the Boston & Maine Railroad.

Of all the beautiful trips which are yearly offered, the annual excursion via the Boston & Maine Railroad to New York city is foremost.

This trip is via the famous Hoosac Tunnel Route, through the Hoosac mountains, along the Deerfield valley and the Berkshire hills, through a grand portion of Eastern New York State to Albany, N. Y.

A royal welcome will be extended at Albany, and special preparations have been made to entertain the visitors. From Albany, N. Y., the trip is via the steamer down the Hudson river. No painter can portray, neither can any description do justice to the scene which meets one's gaze, a succession of interesting places, historical landmarks, scenic landscapes, mountains, valley, caves and cliffs, palisades and forts—all are passed, and then

when one enters the sound, what a sight, strange and interesting, meets the gaze. The view of New York harbor in the early morning is a scene impressive and interesting. Hundreds of crafts, sailing yachts, rowboats, tugs, fishing smacks and ocean liners are all playing their busy part. The beautiful steamer docks at Desbrosses-street pier and sightseeing in the city of New York commences. Go where you please, there are a hundred, yes, a thousand, points of interest in the metropolis.

Leaving New York the return trip to Boston is via the Fall River Line and to Providence and Worcester via the Providence Line steamers.

The rate is \$5 for the round trip from Boston, Worcester and Providence. The train leaves Boston at 8:55 A. M., October 1, arriving in Albany, N. Y., at 7:40 P. M. You can take the night boat for New York city, which leaves at 8 P. M. down the Hudson, and arrive in New York at 6 A. M., October 2, or you can stop one night in Albany, visit the interesting places in this city, and take the day line boat to New York city, leaving Albany at 8 A. M., October 2, arriving in New York at 6 P. M. that night. You can leave New York October 2 or 3 via the Fall River Line for Boston, or if you desire to stop longer in New York, upon depositing your ticket with \$2 at the dock office of the Fall River Line, the limit will be extended ten days.

Consider this trip for \$5! A ride through the "Hoosac Mountains," the "Berkshire Hills" and the prettiest portion of "Eastern New York State," a sail down the "Hudson River" and an ocean trip back to Boston in a palatial steamer.

Round-trip tickets will be on sale at 322 Washington street, Boston, and at Union Station ticket office.

Tickets will be on sale on and after September 23.

Virginia-Carolina Chemical Co.

RICHMOND, VA., Sept. 8th, 1903.

The Board of Directors have this day declared a dividend of 25 (two per cent.), the same being quarterly dividend No. 32, on the Preferred Stock of this Company, payable October 15th, 1903, when checks will be mailed to all Preferred Stockholders of record, at the close of business, September 30th. The books for the transfer of Preferred Stock will be closed from October 1st to October 15th, both days inclusive.

S. W. TRAVERS, Treasurer.

PALMETTO BANK & TRUST CO.

COLUMBIA, S. C.

CAPITAL \$250,000.

GENERAL BANKING BUSINESS TRANSACTED.

In the heart of the great cotton mill development of the South, our services are offered to investigate securities and enterprises.

High class securities offered for sale.

HIGH GRADE

7 per cent. Preferred Stocks, in modern, up-to-date Southern Cotton Mills. Other investment securities also.

F. C. Abbott & Company,
Charlotte, N. C.

MOTTU, DeWITT & CO. Southern Investments, NORFOLK, VA.

Correspondence invited.

Companies Organized Under Corporation Laws of Delaware.

The Laws furnish, at least expense, ample rights to stockholders, with minimum restriction upon corporate action. Charters perpetual, not subject to repeal by the Legislature. Copy of the Law, Blank Forms and Estimate of Expenses furnished by

DELAWARE CORPORATION CO.
16 Market Street, WILMINGTON, DEL.

Beaumont Trust Co.

Beaumont, Texas.

BRANCH OFFICES:
NEW YORK, 22 Pine St.,
Jason C. Moore, Mgr.
LONDON, ENGL., 159 Cannon St.,
Thos. C. Hallamore, Mgr.

S. W. THOMPSON, President
J. H. BAILEY, Vice-President
J. D. BALDWIN, Vice-President
How B. C. DUFF, Vice-President
JASON C. MOORE, Treasurer
HORACE H. LANEY, Secretary
ALFRED H. EVANS, Asst. Secy.

Does a General Trust Company, Fiduciary and Banking Business, and has special facilities, both here and abroad, for handling Railroads, and all other Good Securities. Executes trusts of every description, and acts as fiscal agents and registrars for approved companies.

INCORPORATE

Under a United States Law,

thus insuring respect and dignity throughout the world. No incorporation fee; no annual tax. Information furnished by

The District of Columbia Charter Co.

Columbian Bldg., Washington, D. C.

References by permission:
Central Natl. Bank, Natl. Capital Bank and James L. Norris, Patent Solicitor, Washington, D. C.

Furniture Factories and Hardwood Plants a specialty.

HUGH C. RISDON,

431 Bond Bldg., Washington, D. C.
Industries Located, Organized and Financed.
Bond Issues Placed.

We specialize Industrial Development; assisting Manufacturers to more favorable locations; cooperating with Southern cities in building up Manufacturing interests therein; Organizing and Financing Business Corporations; Placing Bond Issues and Stocks; procuring Capital for Existing Plants; and furnishing skilled and financially responsible Managers, Superintendents and Foremen.

Correspondence solicited. Explanatory Booklet on application.

ADDRESS { P. O. Box 110, Washington, D. C.
{ P. O. Box 601, Norfolk, Va.

HUGH C. RISDON, Industrial Broker.

The Exchange Bank, MACON, GA.

J. W. CARABISS, Pres. C. M. ORR, Cash.

W. H. BURDICK, Asst. Cash.

Capital, \$500,000.00
Surplus and Undivided Profits, 131,028.69

Best facilities for making Collections at lowest rates. Correspondence invited.

FOR SALE.

One \$5,000 State of Georgia 3½% Registered Bond, due January, 1933, to yield 3½%.

MARTIN & BRO.
AUGUSTA, GA.

Established 1885.

The Merchants National Bank,

BALTIMORE, MD.

Douglas H. Thomas, President.

W. M. Ingle, Cash. J. C. Wands, Asst. Cash.

Capital, \$1,500,000.

Surplus and Profits, \$893,000.

Deposits, \$10,150,000.

Accounts of Banks, Bankers, Corporations and Individuals solicited. We invite correspondence.

WE INVITE YOUR DEPOSIT ACCOUNT.

United States Mortgage & Trust Company

GEORGE W. YOUNG,
President.

55 Cedar Street. New York. 73d St. and Broadway.

CAPITAL AND SURPLUS FIVE MILLIONS.

Issues Travellers' Letters of Credit and Foreign Drafts.

MANUFACTURERS' RECORD.

ALPHABETICAL INDEX OF ADVERTISERS.

Ads. marked * appear every other week. Ads. marked † appear in first issue of the month. Ads. marked ‡ not in this issue.

For Classified Index See
Pages 3, 5, 7, 9, 11, 13, 15
and 17.

A	Abbott, F. C., & Co.....	29	Bradon, Jas. S.....	36	Dunn, Wm. J.....	35	Internat'l Acheson Graphite Co.....	59	New York Equipment Co.....	37	Simpson, J. S., & G. F.....	49
Abrasive Material Co.....	38	Bradley Pulverizer Co.....	40	Dunning, W. D.....	31	International Creosot, & On, Co.	51	New York & Ohio Co.....	55	Sinclair, R. P., Co.....	55	
Acme Road Machinery Co.....	42	Brennan, P. C.....	38	Durable Wire Rope Co.....	7	International Mercantile Agency.....	51	Niagara Hydraulic Engine Co.....	52	Situation Wanted.....	55	
Adams, J. M.....	9	Brim, A. W.....	53	Dyer, D. H., & Son.....	6	International Sprinkler Co.....	27	Niagara Mach. & Tool Works.....	39	Skinner Chuck Mfg. Co.....	*	
Adams Laundry Machinery Co.	58	Brobston, Fendig & Co.....	32	Ironsides Co., The.....	56	International Trust Co.....	27	Smith, F. L., & Co.....	41	Smith, H. B., Machine Co.....	17	
Adcock, George E.....	35	Eastern Granite Roofing Co.	45	Jackson, Mfg. Co.....	21	Ironsides Co., The.....	56	Nicholson File Co.....	25	Smith-Courtesy Co.....	47	
Aitchison, Robt., Perf. Met. Co.	42	Easton Fdry. & Mch. Co.....	31	Jeffrey Mfg. Co.....	40	Jenks, T. W.....	6	Smith, H. B., Machine Co.....	47	Smith, H. B., Machine Co.....	47	
Alabama Con. Coal & Iron Co.	21	Eclipse Machine Co.....	39	Jenkins Bros.....	22	Keller, W. B., & Co.....	21	Niles-Bement-Pond Co.	1	Smith, H. B., Machine Co.....	47	
Alabama Frog & Switch Co.	37	Edson Mfg. Co.....	31	Johnson, Charles F.	21	Keith, W. R.	21	Niver, W. K., Coal Co.	21	Smith, H. Morgan, Co.....	52	
Albert & Bryne.....	7	Electrical Material Co.	57	Johnson, John, & Co.	15	Kelly, W. K., Coal Co.	21	Nordyke & Marmon Co.	25	Soileau Steam Feed Works.....	46	
Alberger Condenser Co.	52	Electric Supply Co.	15	Johnston, F. B.	55	Norfolk & Western Railway.....	53	Southeastern Lime & Cement Co.	8			
Alexander Bros.....	24	Elkhart Frog & Crossing Works	37	Joseph, Isaac, Iron Co.	37	Norfolk, Burnham & Co., Inc.	51	Southern Cotton Oil Co.	55			
Alexander, S. B., Jr., Co.	57	Elyria Engine Co.	17	Kellogg Island Lime & Transport	19	North American Metaline Co.	22	Southern Gas & Boiler Wks.	27			
Allington & Curtis Mfg. Co.	58	Emerson, Alfred S.	32	Kaiser, A. V., & Co.	35	Old Dominion Iron & Nail Wks. Co.	54	Southern Pacific.....	32			
Allis-Chalmers Co.	14, 25	Empire Chain Company.....	25	Kaolin Mfg. Co.	34	Old Dominion Land Co.	58	Southern Pipe Covering Co.	23			
Allison, W. D., Co.	54	Engineering Agency.....	55	Kauper Oata Cleaner Co.	37	Oleanda Steel Pulley Co.	27	Southern Railway Co.	55			
Alpha Photo-Kravigning Co.	49	Engineering Co. of America.....	6	Keeler, E. C.	21	Oshorn Engineering Co.	•	Nye & Trodick.....	*			
American.....	49	Erie Pump & Engine Co.	53	Keith, W. R.	21	Osgood Scale Co.	58	Southwark Fdy. & Mch. Co.	*			
American Air Compressor Wks.	42	Exide Pump & Engine Co.	53	Kelley Fire Hose Co.	24	Ostendorf Elevator Co.	17	Speidel, J. G.	12			
American Blower Co.	15	Exchange Bank, Macon Ga.	29	Kelly & Taneyhill Co.	52	Ozone Gas Engine Works.....	17	Spedir, W. E.	7			
American Cement Co.	8	Fairmount Machine Co.	45	Kelvin-Lyon Co.	10	Owner.....	22	Spencer & Hall.....	54			
American Cotton Oil Co.	50	Farquhar, A. B., Co.	47	Kelvin-Lyon Co.	10	Sprague Canning Mch. Co.	54					
American Elec. Sup. & Mfg. Co.	35	Farquhar & Clute Machine Co.	1	Kelvin-Lyon Co.	10	Sprout, Walron & Co.	25					
American Engine Co.	35	Carroll Gas Engine Co.	16	Kelvin-Lyon Co.	10	Standard Caster & Wheel Co.	46					
American Excisor & Mch. Co.	47	Carboneale Chemical Co.	23	Kennedy, L. E. & Co.	35	Standard Electric Co.	26					
American Frog & Switch Co.	13	Carborundum Co.	13	Kirby Lumber Co.	51	Standard Glass Co. Ltd.	28					
American Locomotive Co.	1	Cardwell Machine Co.	49	Knox, George & Co.	13	Standard Paint Co.	43					
American Machine Co.	1	Carey, George H.	35	Kohn, J. W., & Co.	24	Standard Scale & Sup. Co., Ltd.	55					
American Machine Co. of Wil-	ington, Del.	Carey, Philip, Mfg. Co.	24, 44	Koppell, Arthur.....	42	Stewart, John A., Electric Co.	24					
American Mfg. Co.	27	Carlin Machinery & Supply Co.	46	L	Stewart, John A., Electric Co.	24						
American Pulley Co.	23	Carpeil & Clute Machine Co.	1	Lacy, T. H.	31	Stevens, H., Sons Co.	58					
American Railway Supply Co.	4	Carpet Gas Engine Co.	16	Lafourche Progressive Union.....	51	Stewart, John A., Electric Co.	24					
American Roofing Co.	45	Carboneale Chemical Co.	23	Lands Tool Co.	10	Stevens, James M.	58					
American Sheet Steel Co.	26	Caroline Iron Works.	40	Lane Mfg. Co.	47	Stevenson, E. B., Sons Co.	42					
American Ship Windlass Co.	51	Carver Cotton Gin Co.	48	Lapham, O. K.	33	Stirling Co.	*					
American Spiral Pipe Works.	53	Cary Spring Works.	25	Latrebo Steel & Coupler Co.	13	St. Louis Iron & Machine Wks.	16					
American Steam Gauge & Valve	Mfg. Co.	Casey Mfg. Co.	19	Leffel, James & Co.	51	Stockier, George J....	72					
American Type Founders Co.	49	Casey, D. L., Machine Co.	33	Leffler, Chas., & Co.	51	Stowell Mfg. Co.	45					
Anderson, Frank Y.	32	Castner, Curran & Bullitt.	49	Lehman, Charles T.	35	Stratford H. N., Mfg. Co.	18					
Andrews & Johnson Co.	20	Carnell, George.....	42	Lewis, H. F., & Co.	22	Straub Machinery Co.	35					
Andrews, Perry, & Bro.	52	Cattlett, Charles.....	6	Lidgerwood Mfg. Co.	20	Stuebner, G. L., Iron Works.	38					
Anthracite Mch. & Supply Co.	34	Chalmers, James.....	44	Lodge & Shipley Mach. Tool Co.	24	Sturtevant Mill Co.	41					
Appraisal & Audit Co. of Amer.	23	Chase Pulley Co.	46	Lombard Iron Wks. & Sup. Co.	17	Sullivan Machine Co.	42					
Arctic Machine Co.	22	Chattanooga Machinery Co.	23	Louisville Elevator Co.	10	Summit Proofing Co.	25					
Armitage Mfg. Co.	45	Chattanooga Paint Co.	44	Lowe, Edgar S. Co.	26	Sutherland, Howard.....	56					
Armstrong, R. S., & Bro.	36	Chattanooga Roof & Fdry. Co.	7	Lowell Crayon Co.	49	T						
Asphalt Ready Roofing Co.	45	Chattanooga Wire & Fdry. Co.	1	Lowell Crayon Co.	49	Hilliday Steel Pipe & Tank Co.	36					
Athens Chamber of Commerce.	51	Chattanooga Zinc Co.	1	Loyd, John T. & Co.	21	Taylor Iron & Steel Co.	38					
Atherton Machine Co. A. T.	†	Chattanooga Zinc Co.	1	Loyd, John T. & Co.	21	Thompson, Auto & Co.	41					
Atkins, E. C., & Co.	47	Chase, D. L., Machine Co.	33	Loyd, John T. & Co.	21	Thompson, Edward H., & Sons Co.	27					
Atlas Engine Works.	17	Chase, D. L., Machine Co.	33	Loyd, John T. & Co.	21	Thomson, Henry W.	28					
Audit Co. of New York.	25	Chastain, Curran & Bullitt.	49	Loyd, John T. & Co.	21	Tobey & Kirk.....	28					
Aultman Co. The.	*	Chattanooga Zinc Co.	1	Loyd, John T. & Co.	21	Todd, William, Co.	16					
Austin Mfg. Co.	41	Chattanooga Zinc Co.	1	Loyd, John T. & Co.	21	Toompkins, D. A., Co.	49					
B	Babcock & Wilcox Co.	17	Chattanooga Zinc Co.	1	Loyd, John T. & Co.	21	Toomey, Frank.....	33				
Bacon Air Lift Co.	54	Chattanooga Zinc Co.	1	Loyd, John T. & Co.	21	Torras, Salvador.....	32					
Badger, E. B., & Sons Co.	48	Chattanooga Zinc Co.	1	Loyd, John T. & Co.	21	Transoceanic Co. & Co.	97					
Badger Fire Extinguisher Co.	1	Chattanooga Zinc Co.	1	Loyd, John T. & Co.	21	Treasurer Department.....	31					
Badger, Adamson & Co.	49	Chattanooga Zinc Co.	1	Loyd, John T. & Co.	21	Trenton Iron Co.	46					
Baley-Lebby Co.	39	Chattanooga Zinc Co.	1	Loyd, John T. & Co.	21	Triumph Electric Co.	21					
Balley, John T., & Co.	9	Commercial Electric Co.	51	Loyd, John T. & Co.	21	Tupelo Tank Co.	21					
Baird, Machinery Co.	39	Continental Iron & Steel Co.	38	Loyd, John T. & Co.	21	Underwood, H. B., & Co.	39					
Baker, Stillwell & Hart.	34	Continental Trust Co.	27	Loyd, John T. & Co.	21	Union Brick Bond Co.	74					
Baldwin Locomotive Works.	12	Contractors' Equipment Co.	24	Loyd, John T. & Co.	21	Union Iron Works Co.	*					
Ball Engine Co.	16	Contractors' Plant Mfg. Co., Ltd.	20	Loyd, John T. & Co.	21	Union Rail Co.	36					
Ball & Wood Co.	18	Contractors' Supply & Equip. Co.	34	Loyd, John T. & Co.	21	Union Traction & Power Co.	24					
Baltimore Belting Co.	24	Contractors' Supply Co.	33	Loyd, John T. & Co.	21	University School for Boys.	45					
Baltimore Engine Co.	17	Cook's Adam, Sons.	16	Loyd, John T. & Co.	21	Upton, W. B., Co.	4					
Balto. Fidelity Warehouse Co.	28	Coleman, Geo. V., Co.	12	Loyd, John T. & Co.	21	U. S. Cast Iron Pipe & Fdy. Co.	57					
Baltimore-Maryland Engrav. Co.	53	Clyde Machine Works.	31	Loyd, John T. & Co.	21	U. S. Mineral Wool Co.	2					
Balt. Shipbdg. & Dry Dock Co.	58	Cooley Machine Works.	21	Loyd, John T. & Co.	21	U. S. Mortgage & Trust Co.	29					
Baltimore Steam Packet Co.	54	Conrad, John, & Co.	21	Loyd, John T. & Co.	21	Valk & Murdoch Iron Works.	19					
Baltimore Boiler Works.	19	Crossley Machine Works.	23	Loyd, John T. & Co.	21	Valley Iron Works.	18					
Baltic Fidelity Warehouse Co.	28	Crooked Fork Coal & Coke Co.	21	Loyd, John T. & Co.	21	Vanduzen Co., E. W.	23					
Baltic, Wm. G.	1	Crosby Steam Gage & Valve Co.	5	Loyd, John T. & Co.	21	Van Noorden, E. Co.	45					
Barrett Mfg. Co.	26	Cumberl. Hyd. Cem. & Mfg. Co.	10	Loyd, John T. & Co.	21	Van Winkle, E. G., Gin & Mch. Wks.	49					
Bartlett, C. O., & Snow Co.	10	Cushing Co., The.	51	Loyd, John T. & Co.	21	Vitter Mfg. Co.	22					
Bates, James, Sons.	10	Harry Bros. Co.	23	Loyd, John T. & Co.	21	Virginia Cider & Iron Co.	6					
Bates Machine Co.	16	Hartfield-Garrett Co.	18	Loyd, John T. & Co.	21	Vitrified Wheel Co.	28					
Beach, H. W.	47	Hartford Blower Corporation.	20	Loyd, John T. & Co.	21	Wakeman Watchman Clock Co.	4					
Beaumont Trust Co.	29	Hartford Steam Boiler Inspection	1	Loyd, John T. & Co.	21	Walk, Henry, Co.	19					
Beckley, A. J., Co.	43	Hartley's Boiler Works.	11	Loyd, John T. & Co.	21	Walker & Elliott.....	42					
Belmont Iron Works.	42	Hartman, W. G., Cement Co.	21	Loyd, John T. & Co.	21	Wal, F., Mfg. Supply Co.	25					
Bennett, G. L.	35	Harvey, W. H.	21	Loyd, John T. & Co.	21	Walton, G. C., Co.	32					
Bertoch & Co.	1	Hawley, Wm.	21	Loyd, John T. & Co.	21	Warren, Charles, Co.	32					
Bickford Drill & Tool Co.	38	Hawley, Wm.	21	Loyd, John T. & Co.	21	Warren Chemical & Mfg. Co.	41					
"Big Four"	33	Hazell Bros.	42	Loyd, John T. & Co.	21	Watson, A. H.	48					
Bird, F. W., & Son.	43	Healy Ice Machine Co.	22	Loyd, John T. & Co.	21	Watson, B. H.	35					
Bird, J. A. & W., & Co.	44, 45	Help Wanted.....	57	Loyd, John T. & Co.	21	Watkins, Frank M., Mfg. Co.	14					
Bird, Wm. M., & Co.	8	Hench & Dromgold Co.	47	Loyd, John T. & Co.	21	Watson, Benjamin.....	37					
Birmingham Boiler Works.	19	Hendrick Mfg. Co.	47	Loyd, John T. & Co.	21	Watson-Stillman Co.	32					
Birmingham Ball & Loc. Co.	26	Hermann Machine Co.	47	Loyd, John T. & Co.	21	Weber, C. O., Warren, ...	19					
Birmingham Corporation Co.	26	Herschell, Spillman & Co.	45	Loyd, John T. & Co.	21	Weir Frog Co.	37					
Blakely, A. E., & Co. Ltd.	1	Hicks Locomotive & Works.	27	Loyd, John T. & Co.	21	Western Electric Supply Co.	37					
Blakely Mfg. Co.	16	Hicks Metal Co.	27	Loyd, John T. & Co.	21	Western Supply & Mfg. Co.	37					
Blank, Ewald G.	6	Hill, Wm. E., & Co.	3	Loyd, John T. & Co.	21	Westinghouse Air Brake Co.	14					
Blythe, Richard A.	31	Himmel, M. L., & Son.	47	Loyd, John T. & Co.	21	Westinghouse Church, Kerr & Co.	14					
Board of County Commissioners												

PROPOSALS.

When Competitive Bids are Wanted

from first-class firms, these columns are invaluable in reaching engineers, architects, builders and contractors on railroad construction (steam and electric), water works, sewerage, electric light plants, municipal improvements, buildings and all public franchises and utilities throughout the entire country. Rate—20 cents per line per issue.

When the next regular issue of the Manufacturers' Record is too late for quick bids, the Daily Bulletin of the Manufacturers' Record will bring immediate results, as it is published every business day in the year, reaching many of the leading engineers, contractors, manufacturers and others, North, East, South and West.

DRIVING DEEP WELLS.

Jno. C. Stanfield, Supervisor Washington County, Holston, Va., who advertised in the proposal columns of the Manufacturers' Record for bids on the steel bridge across the Holston River, Va., writes in regard to the results obtained from this advertisement, as follows:

"My advertisement in your paper was entirely satisfactory. I had twelve bidders from the different States, and, in my opinion, I thought this was a good representation of the bridge builders of the country. I will most heartily endorse your paper as the one to advertise in."

W. D. Arthur, Secretary of the Carnegie Library Building Committee, Union, S. C., who inserted in these columns an advertisement for designs for the Carnegie Library to be erected in Union, says:

"The results of the advertisement were very satisfactory."

TREASURY DEPARTMENT, Office of the Supervising Architect, Washington, D. C., August 21st, 1903.—Sealed proposals will be received at this office until 3 o'clock P. M. on the 7th day of October, 1903, and then opened, for the installation of a conduit and electric wiring system for the U. S. Custom House and Post Office at Newport News, Virginia, in accordance with the drawings and specification, copies of which may be obtained at this office or at the office of the Superintendent of Construction at Newport News, Va., at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect.

TREASURY DEPARTMENT, Office of the Supervising Architect, Washington, D. C., September 1st, 1903.—Sealed proposals will be received at this office until 3 o'clock P. M. on the 7th day of October, 1903, and then opened, for the installation of an electric wiring system for the extension of the U. S. Post Office, etc., Scranton, Pa., in accordance with the drawings and specifications, copies of which may be obtained at this office or at the office of the Superintendent of Construction at Scranton, Pennsylvania, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect.

TREASURY DEPARTMENT, Office of the Supervising Architect, Washington, D. C., August 29, 1903.—Sealed proposals will be received at this office until 3 o'clock P. M. on the 30th day of September, 1903, and then opened, for the installation of two electric passenger elevators in the United States Appraiser's Warehouse, New York, N. Y., in accordance with the drawings and specification, copies of which may be obtained at this office, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect.

ABBEVILLE, SOUTH CAROLINA. \$20,000.

SEALED PROPOSALS will be received until October 15th, 1903, at 6 o'clock P. M., for the purchase of twenty thousand dollars sewerage bonds of the City of Abbeville, bearing interest at five per centum per annum (payable annually or semi-annually, to suit purchaser), maturing forty years from date, with option of payment after twenty years from date. Denomination to suit purchaser, except must be \$1000 or less. Bonds dated October 15, 1903.

Assessed valuation of city property is \$1,193,226. Real valuation \$3,500,000. The total debt with this issue is \$71,360. Population, 4500. Right is reserved to reject any and all bids. All bidders must deposit certified check for \$200 to insure sale if bid accepted.

JAMES CHALMERS, City Clerk.

BIDS will be received until September 20 for the erection of a Brick Church, with stone trimmings and a slate roof, at Greenwood, Miss. Plans and specifications are on file in the office of Gardner & McClurg at Greenwood, Miss. The right to reject any bid or any part of a bid is reserved.

W. T. FOUNTAIN,
Greenwood, Miss.

Architects, Engineers & Owners,

to whom time is of great importance, should write for information in regard to our ability to rush work.

Frank B. Gilbreth,
General Contractor.

Boston. New York. London.

THE BOURNE-FULLER CO.

IRON, STEEL, and PIG IRON.

Cleveland, O.

If you carry a ton of bars or shapes for a year, it costs you in interest charges at least two dollars. Then the stuff takes up room, and perhaps is not what you want after all.

Patent Cylindrical Electric Copier

(Made in eight types—5 standard sizes).

Easy to operate. Economical in use.
Write for catalogue.

Pittsburg Blue Print Co.
1505 P Park Bldg., Pittsburg, Pa.

RICHARD A. BLYTHE, COTTON WARPS AND YARNS, No. 114 Chestnut Street, PHILADELPHIA, PA.

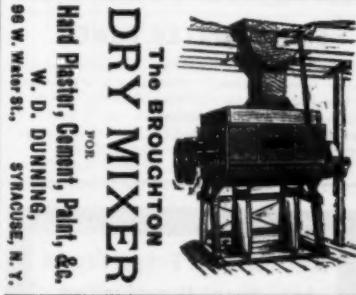
**BUCKINGHAM, PAULSON & CO., Commission Merchants,
COTTON YARNS,**
NEW YORK. PHILA. CHICAGO.

CORRESPONDENCE AND CONSIGNMENTS SOLICITED.

Industrial Enterprises Organized and Financed.

If you have an Industrial Enterprise you want financed, write me, giving complete description and I will send you full information.

ROBERT ROSS ZELL, M. E., 204 McGowan Bldg., Birmingham, Ala.
Examiner for American Guaranty Company in the South.



The Boomer & Boschert

KNUCKLE JOINT PRESS

For Baling Cloth, Paper, Yarn, &c.
Or for any other purpose requiring great pressure.

BOOMER & BOSEHRT PRESS CO.

386 W. Water St., Syracuse, N. Y.

Thos. W. Simpers & Co.

Crozer Bldg., Philadelphia.

Plates, Sheets, Roofing, Bars, Shapes,
Tin and Terne Plates.

LIGHT RAILS A SPECIALTY.

If you want to reach the possible land buyers and investors in the North and West who are thinking of locating in the South, advertise in the SOUTHERN FARM MAGAZINE. Published by the Manufacturers' Record Publishing Co., Baltimore, Md.

**PITTSBURG
METER CO.**

MAKERS OF

WESTINGHOUSE GAS METERS

OFFICE AND WORKS:

East Pittsburg, Pa.



SPECIAL Advertisements OF GENERAL Interest. OPPORTUNITIES FOR INVESTORS.

ADVERTISING RATES FOR SPECIAL ADVERTISEMENTS:					
Inches	1 time.	2 times.	3 times.	4 times.	
1.....	\$1.75	\$3.00	\$4.25	\$5.00	
2.....	3.00	5.50	8.00	10.00	
3.....	4.25	8.00	11.75	15.00	
4.....	5.50	10.50	15.50	20.00	
5.....	6.75	13.00	19.25	25.00	
6.....	8.00	15.00	22.00	28.00	
1/4 page (13 in.)	16.00	30.00	42.00	52.00	

Coal, Iron and Timber Lands.

Southern Timber Lands

FOR SALE.

150,000 Acres.

Containing Pine, White Oak and Hickory.

Located in North Louisiana, along the Vicksburg, Shreveport and Pacific Railroad (Queen and Crescent Route), will be sold in lots to suit.

A great deal of these lands are valuable for farming purposes after the timber is cut off. For particulars apply to

FRANK Y. ANDERSON,
Land Commissioner,
BIRMINGHAM, ALABAMA

COAL LAND

FOR SALE.

Situate in Western Kentucky.

100 acres in fee simple, 80 acres of which are in forest. Carrying three 4-ft. seams bituminous coal of superior quality, analysis showing—volatile, 43-47 per cent.; carbon, 50-53 per cent.; ash, 2-5 per cent.; sulphur, 0.70-1.14 per cent. After the geology of the country, known as seams Nos. 1, 3 and 4, No. 1 being the lowest. No. 4 coal outcrop and No. 3 has been penetrated by prospect shaft about 50 ft. in depth. Both seams, No. 4 and No. 3, are exploited, show 4 ft. thick, compact, free from partings, have good roof, and ample superincumbent strata to allow safe working. No. 1 coal not yet exploited on land, but from geological section should be about 80 ft. below No. 3 seam. Dip about 1 inch to the yard, and in direction of railroad which runs through one side of property. Price \$25,000.

Address A. H. REED,
522 North Seventh Street, PADUCAH, KY.

FOR SALE

(By Owner.)

650 acres of Coal Property located on the Great Kanawha river, West Virginia. This land carries two seams of Splint and one of Coking Coal. Shipping facilities, Kanawha River and C. & O. R. W. There is one running mine on the property with a daily out-put of one hundred tons. Address,

Box 8,

Lewiston, Kanawha Co.,
West Virginia.

Parties desirous of investing in Timber, Coal, Lime or Cement properties in West Virginia are respectfully invited to apply to

R. P. PEARSON,
Mining Engineer and Surveyor.
PARSONS, TUCKER CO., W. VA.

Southern Investments

COAL and IRON Properties
are my Specialty.

If you have a dividend-paying property to sell or wish to buy, write me. The larger the deal the better.

BANK REFERENCES FURNISHED.
R. E. WATSON, 401-402 Empire Bldg., ATLANTA, GA.

FOR SALE.
Forty-Three Thousand Acres of Fine Hard Wood Timber Land
in one body, on railroad. Address,
ALFRED S. EMERSON,
MURPHY, N. C.

Water Powers and Mill Sites.

UNRIVALLED LOCATION FOR INDUSTRIAL ENTERPRISES

WATER POWER 24 Hours Use Daily.

\$15.00 per Horse Power per Year.
46 Feet Head and Fall at

Weldon, North Carolina

8 miles from Norfolk, Va. 12 hours travel from New York City. At junction of A. C. L. and S. A. L. Railway Systems. Steamboat to tidewater.

Free Building Sites, Banks, Schools, Electric Lights and Electric Power.

ROANOKE NAVIGATION & WATER POWER CO.

JAS. W. WILSON, President,
Write for Booklet. WELDON, N. C.

I OWN A GOOD LOCATION

In New Orleans for a saw mill and wood working factory, with some timber land and access to more. Will sell or join party with capital to establish business. Rail and water transportation.

LLOYD POSEY,
Masonic Temple, New Orleans, La.

50 H. P. WATER POWER.

May be doubled. Location four miles to railroad. Good location for wheat, corn, saw milling or wood manufacturing, brick making. Want to sell interest in the business to active man who can take charge and manage. Now running 2 30" water wheels on wheat, corn and lumber.

Address H. Box 1, Fredericksburg, Va.

Miscellaneous Properties and Investment Opportunities.

Saw Mill Plant

FOR SALE.

Consisting of 16x24 slide valve engine, 8 boilers, wheel and carriage, dry kiln piping, lathe machinery, 90 head very heavy mules and horses, drays, etc. All new; only in use one year; now in operation.

Will sell in part or whole. Schedule upon application. Address

WOODWARD LUMBER CO.
ATLANTA, GA.

FOR QUICK ACCEPTANCE.

We offer for sale an up-to-date milling plant, with dry kilns and planing mill attached. At the junction of two trunk lines of railroads. Timber has been estimated to cut about 22,000,000 feet. Rate to Brunswick, Ga., a deep water port, \$6.00 per car. Price \$25,000.

This is a going concern and is ready for buyer to step right into a paying business. Good reasons given for wanting to sell.

BROBTON, FENDIG & CO., Brunswick, Ga.

For Sale. The Old Pickens Plantation.

Located near Dyson's Post Office on C. & W. C. R. R., containing 1800 acres. 1500 acres in Greenwood County and 300 acres in Newbury County, S. C. Improvements—dwelling and twelve tenant houses. Iron bridge spans Saluda River, which flows through plantation. Best STOCK FARM in South Carolina. Price \$15,000.00. Address

Clarence E. Clark,
AUGUSTA, GEORGIA.

SALVADOR TORRAS

(MACHINIST.)

House Established in 1884.

Desires to represent as agent throughout Spain, sewing machines, automobiles, motorcycles, bicycles, accessories and gums (cements) for the same, of American manufacture. Will travel at own expense [free of charge.]

Calle Regomir 4 Bis,
BARCELONA, SPAIN.

Write Correspondence in Spanish or French.

FOR SALE.

Flour Mill, Elevator, Planing Mill, Electric Light Plant.

To settle the estate of Wm. Ward, deceased, I offer for sale his splendid combined Flour Mill, Elevator, Planing Mill and Electric Light Plant, at Lancaster, Ky. Flour mill has 75 barrels capacity, just refitted with the most modern machinery throughout; the electric light plant very latest pattern, and includes the exclusive franchise in the city; planing mill in perfect repair; all operated with one power.

This is one of the finest investments in Kentucky, and will pay interest on twice the amount asked for it. Address

R. G. WARD, Administrator,
Lancaster, Ky.

COTTON LAND.

For Sale—Several thousand acres tract first-class Yazoo Delta cotton land on Ill. Cen. R.R. and Mississippi river; it is out of the ordinary in quality and situation and has no superior in its fitness for very profitable cotton raising on a large scale by a company of nonresident owners through a resident manager. Send for plat and description. Owner, Room 402, 510 Pine St., St. Louis, Mo.

SMALL MANUFACTURING PLANT FOR SALE VERY CHEAP.

Can be made a great money maker. Will sell one-half interest or whole plant. Practical man of experience with \$2500 cash can make good investment and secure good position with good salary.

Address A. T. MOORE,
122 East Eighth St., CHATTANOOGA, TENN.

WANTED.

In Philadelphia or vicinity, a building for machine shop. Ground floor not less than 6000 sq. ft. in area. Ceiling not lower than 14 ft. With or without power. Must be on or near railroad. Address "R. D." Care Manufacturers' Record.

"Millions for Farmers"

Exhaustive tests prove that the finest grade of

TEXAS TOBACCO RACKS

Write for Full information to

So Says Secretary Wilson
U. S. Dep't of Agriculture

CUBAN LEAF Filler and Wrapper can be grown in East Texas on line of

The SOUTHERN PACIFIC
Soils and Climate similar to famous Vuelta Abajo District o

Pinar del Rio, Cuba.

T. J. ANDERSON, General Passenger Agent,

HOUSTON, TEX.



The Schwarz-System Brick Company,

SAND-LIME BRICK ENGINEERS.

Factories Built by Us are Built Right and Run Right.

Chemicals Are Not Necessary to Make Good Sand-Lime Brick.

6-8-10 BRIDGE ST.
MARITIME BLDG.

New York.

WE SEARCH THE WORLD

For Good Men

We supply competent Executive, Clerical & Technical Men for all kinds of work. Write, telephone or telegraph us when needing such a man, stating particular as to work, salary, etc., and we will promptly place you in communication with the right man. If you are a competent man looking for a position, write for our plan and booklet.

HAPGOODS
(Incorporated)

Suite 511, 300 Broadway, New York
815 Penna. Bldg., Philadelphia
829, Monadnock Block, Chicago

Boiler Plant for Sale

At New Albany, Ind.

An up-to-date Boiler and Sheet Iron Manufacturing Establishment, formerly owned by M. Zier & Co., equipped with air and electric improvements and a stock of merchandise on hand. Ready to begin work immediately. Can be bought at a great bargain. Apply to

Geo. Borgerding,
of the New Albany National Bank,
NEW ALBANY, IND.

CHARCOAL

For Sale by Carload.

J. A. MATHIEU,
Georgetown, S. C.

FOR SALE.

SAND AND GRAVEL BEACH (35 Acres)

22 Miles from Norfolk, Va. Beach has large Cottages on it, and is excellent site for Summer Resort or for Sand and Gravel business.

Address P. O. Box 180. Portsmouth, Va.

FOR SALE.

Sash, Door and Blind Factory, equipped with up-to-date machinery. One of the finest locations in the South. Best of reasons for selling. For particulars inquire

BROBTON, FENDIG & CO.
BRUNSWICK, GA.

FOR SALE.

MACHINE SHOP AND FOUNDRY, MERIDIAN, MISS.

Manufactures best cotton press in the world. Does general repair work. Large lot of valuable patterns on hand. Running full capacity. Plant and property for sale at a bargain.

Address Box 455, MERIDIAN, MISS.

WE OWN IDEAL VIRGIN RICE LAND,
fifteen miles from New Orleans, on the
Southern Pacific Railroad. Plenty of
water for irrigation, Rich Soil suitable
for Cotton, Corn, Sugar and Truck. Will
sell very cheap now on long and easy
payments, in tracts to suit. Special inducements to organize planting com-
panies. Write at once for particulars.

O. H. WINEGAR, LLOYD POSEY,
Cont. Nat. Bank Bldg. Masonic Temple,
St. Louis, Mo. New Orleans, La.

WANTED.
Axe Handle Shapes and Turned
Axe Handles in the Rough,
Car load lots, for cash.
STANDARD HANDLE CO., Ltd.
KNOXVILLE, TENNESSEE

LOCATION WANTED.
A manufacturer, doing a large foreign
and domestic business, wants a good
location, where some inducement in
land and buildings can be obtained.
Address MANUFACTURER,
Care the Central Nat. Bank, Washington, D. C.

FOR SALE.
New Rubber Belt (Hontas Brand.)
430 ft. 2" wide, 3-ply, 6 cts. per foot.
460 ft. 3" wide, 3-ply, 9½ cts. per foot.
380 ft. 3½" wide, 3-ply, 11 cts. per foot.
400 ft. 4" wide, 4-ply, 15 cts. per foot.
390 ft. 4½" wide, 4-ply, 17 cts. per foot.
400 ft. 5" wide, 4-ply, 19 cts. per foot.
370 ft. 6" wide, 4-ply, 22½ cts. per foot.
270 ft. 8" wide, 4-ply, 30 cts. per foot.
350 ft. 10" wide, 4-ply, 38½ cts. per foot.
Prices are net. F. O. B. Pittsburgh, Pa.
Spot Cash.

Brown & Zortman Machinery Co.
PITTSBURG, PA.

"Big Four"

The
World's Fair Route
From The
Leading Cities of
OHIO, INDIANA
and **ILLINOIS**

To
ST. LOUIS

WRITE FOR FOLDERS.

Warren J. Lynch, Gen'l Pass. Agt.
W. P. Deppe, Ass't Gen'l P. A.

CINCINNATI, OHIO.



Bargains in Machinery FOR IMMEDIATE DELIVERY.

BOILERS.

- 1 250 H. P. Babcock & Wilcox, 160 lbs. pressure.
- 1 250 H. P. Heine Watertube, 150 lbs. pressure.
- 1 200 H. P. Heine Watertube, 150 lbs. pressure.
- 1 250 H. P. Climax vertical, 150 lbs. pressure.
- 1 375 H. P. National, Watertube, 150 lbs. pressure.
- 1 267 H. P. Abendroth & Root, 150 lbs. pressure.
- 1 267 H. P. Sterling Watertube, 125 lbs. pressure.
- 2 60" x 15" Tubulars, 200 lbs. pressure.
- 2 42" x 14" Tubulars, 100 lbs. pressure.
- 2 RETURN TUBULARS, 72" x 17". INSURED 120 lbs. HARTFORD.

ENGINES.

- 1 22x48 Hewes & Phillips, Corliss.
- 1 28x48 Wetherill Corliss.
- 1 20x42 Hamilton Corliss.
- 1 18x36 Cammer, 4 valve.
- 1 14x32 Allis Corliss.
- 1 10x30 Allis Corliss.
- 1 18x24 Atlas automatic.
- 1 18x18 Ridgeway McEwen.
- 1 13x21 Buckey automatic.
- 1 13x15 McIntosh & Seymour.
- 1 15x16 Weston automatic.
- 1 13x14 Ideal automatic.
- 1 13x12 Ideal automatic.
- 1 13x12 Armington & Sims.
- 1 10½x10 Ideal automatic.
- 1 8x7 Westinghouse, Jr.
- 3 11x17x14 Harrisburg Ideal.
- 2 13x19x15 McIntosh & Seymour.
- 1 13x20½x15 Armington & Sims, C. C.

ENGINES.

- 2 24-44x48 tandem compound Cooper Corliss.
- 1 20-36x48 tandem compound Hamilton Corliss, right-hand, wheel 22" diam. x 56" face.
- 1 20-36x42 tandem Fitchburg.
- 1 15-30x16 Westinghouse.
- 1 18-34x48 cross compound Cooper Corliss.
- 4 16-32x48 tandem compound Cooper Corliss.
- 1 16-27x16 Westinghouse.
- 1 16-26x17 tandem Erie Ball.
- 1 15-25x16 Erie Ball cross compound.
- 1 14-25x16 Ball & Wood cross compound, self-contained.
- 1 14-23x18 tandem Ames.
- 1 14-24x14 Westinghouse.
- 1 13-22x13 Westinghouse.
- 2 13-23x18 tandem Williams.
- 1 13-19x15 tandem McIntosh & Seymour.
- 1 8½-12x14 tandem McIntosh & Seymour.
- 1 36x72 Corliss, 60-ton wheel.
- 1 28x60 Allis, 1890 frame.
- 1 24x48 Hamilton Corliss.
- 1 24x48 tandem Hamilton Corliss.
- 1 22x42 Harris Corliss.
- 1 21x18 Armington & Sims.
- 1 18x48 Knowlson & Kelly Corliss.
- 1 18x48 Allis Corliss.
- 1 18½x18 McIntosh & Seymour.
- 2 16x16 Ball & Wood.
- 1 15½x24 Buckeye, tangy frame.
- 1 14½x24 Buckeye, tangy frame.
- 1 14x16 Safety, New York Power Co.
- 2 13x16 Harrisburg Ideal.
- 1 11x12 McIntosh & Seymour.
- 1 9½x10 Armington & Sims.
- 1 9x12 Ball.

Steam and Electrical Machinery.

THOMPSON SON & CO.

114-118 Liberty St. NEW YORK CITY.

Largest Stock

FIRST AND
SECOND-HAND

MACHINERY.

REBUILT AND
GUARANTEED.

What are your wants?

FRANK TOOMEY,
127-131 N. Third Street,
PHILADELPHIA.

MENGEL'S MACHINERY EXCHANGE

15 H. P. Geyser Portable Boiler and Engine on wheels. 25 H. P. Portable Duvall on skids. 10 H. P. Baxter Engine and Boiler combined. 55 H. P. White & Middleton Gas or Gasoline Engine, 12" by 36". 60 H. P. Hamilton-Corliss Engine, directly connected to 25-ton Linde Ice Machine. 5 and 10-ton Vertical Compressors. 4 25 and 35 H. P. Horizontal Engines. Sharp's Collar and Cuff Ironer. Band Starcher and Ironer. 50 gal. Copper Starch Kettle. 60-light Dynamo. 25 110 volt Manhattan Arc Lights. Cylinder and Job Printing Presses. Paper Cutters. Complete Plants and Machinery of all kinds Bought, Sold and Exchanged. Nearly new 25 H. P. White & Middleton Marine Gasoline Engine.

Mengel's Mach'y Exchange, 12 E. Lombard St., Baltimore Md.

BOILERS!

Engines, Machinery in great variety at LOW PRICES.

Correspondence solicited by FIDELITY MACHINE AND METAL COMPANY, 1408-22 Washington Ave., Phila.

FOR SALE.

One Lodge & Shipley lathe, 18 in x 10 ft. 0 in. 6 months old; used about 4 days. One No. 11 Union Drop Forge Company's oil furnace, new. Address CHESAPEAKE IRON WORKS, BALTIMORE, MD.

Second-hand Dynamos, Motors and Electrical Appliances. All money savers. Repair anything. Have you a Dynamo or Motor for sale?

GUARANTEE ELECTRIC CO.
128-130 N. Clinton St. CHICAGO.

For Sale

At a Sacrifice.

One 1½ yd. Bucyrus Steam Shovel in good condition.

One 10"x16" Hoagland Rock Crusher.

For detailed information, and specifications, address

The Cameron & Barkley Co.

Charleston, S. C.

FOR SALE.

ENGINES.

14" x 22" Cooper automatic \$400; 14" x 20" \$300; 12½" x 21" \$175; 12" x 16", 11" x 16" center crank, two 13½" x 4" Porter-Allen automatic \$350 each; Vertical engine 6" x 8" \$35; 6" x 10" \$35; One hundred horse power tubular boiler \$400; Six 70 H. P. tubular boilers \$300 each; One new 65 H. P. Scotch boiler \$350; One new 35 horse Scotch boiler \$300; One 35 H. P. portable boiler \$200; Forty, Forty-five, Fifty and Sixty horse tubular boilers; Ten vertical boilers; Fire engine, Cole Bros. make, \$300; Thirteen horse Russell traction almost new \$500; Two 13 horse tractors \$350 each; Ten horse portable engine on wheels \$150; Seven sawmills; One 40" Stedman disintegrator with rolls and screens \$300; New boilers and engines all sizes.

D. L. CASEY MACHINE CO.
Springfield, Ohio.

Engines.

Boilers.

9x9 Vertical Center Crank.

8x12 Horizontal Center Crank.

4 Vertical Boilers, 10, 15, 18, 25 H. P.

6 Hoisting Engines, various styles.

Drill Presses and Planers.

CONTRACTORS' SUPPLY CO.
Park Building, PITTSBURG.

Bargains in Second-Hand Direct Connected Units.

One 50 K. W. "Eddy" generator directly connected to 13" x 17" "Amer" horizontal automatic engine. 400 amperes, 125 volts, 250 revolutions.

One 25 K. W. "Westinghouse" generator directly connected to 10" x 12" "Ball" hor. automatic engine, 125 volts, 240 amperes, 300 revolutions.

L. F. REIFFERT'S SON,
437-441 N. Third Street, PHILADELPHIA.

FOR SALE.

One 6x36-inch Cook's deep well pumping engine almost new.

One 40 H. P. Fairbanks, Morse & Co. gas engine.

One 40x50-inch split Hill friction clutch pulley. Also a lot of large pulleys for which we have no use. Apply to

Ground Hog Plow & Foundry Co., Clarksville, Tenn.

FOR SALE.

75 K. W. direct connected set, 115 volts, excellent condition,

J. C. M. LUCAS,

BALTIMORE.

22 Light Street,

Lansdowne, Pa.

XUM

LATHES.

- No. 72 14"x5' Lodge & Shipley.
 No. 73 14"x5' Lodge & Shipley.
 No. 49 20"x10' Taper, Lodge & Shipley.
 No. 47 20"x8' Lodge & Shipley.

THE LODGE & SHIPLEY
MACHINE TOOL CO.

CINCINNATI, OHIO, U. S. A.

FANS.

Central station man's opportunity to increase the day load. We offer for immediate delivery, all f.o.b. Cincinnati, the following 125 cycle fans:

150 G. E. swivel and trun., 12 in., 104 volt., \$5.00 each.
 150 Emerson solid, 12 in., 52 volt., \$3 each.
 200 Westinghouse solid, 13 in., 52 volt., \$3.50 each.
 100 G. E. swivel and trun., 12 in., 52 volt., \$4.00 each.

JOHN A. STEWART ELECTRIC CO.
430 Sycamore St., Cincinnati, Ohio.

FOR SALE.

- 1 50 H. P. Engine, side crank, self-contained, 12x18 cylinder, flywheel 66" diameter, 14" face; all appurtenances, built by Casey & Hedges, Chattanooga, Tenn., and none better made. In use about three years, with best care.
 3 25 H. P. Boilers, Scotch marine, return tubular, stacks 25", 25" diameter; all appurtenances and pipe connections. Built by Casey & Hedges, and none better built. In use about three years, with best of care.
 2 Worthington Prospecting or Sinking Pumps, 4 1/2"x2 1/2"x4", steam pipe 2 1/2" discharge 1 1/2", suction 2", capacity 3000 gals. of sandy, gritty water. In fine condition.
 1 Centrifugal Pump, 2" discharge, 2 1/2" suction. Made by Thos. Williamson, Hockessin, Del. A splendid pump, in fine condition.
 1 Flory Hoisting Engine, cylinder 3/4", friction drum 10" diameter, 16" long. Capacity 900 lbs., with single line.
 1 Horse Power Hoisting Drums, with automatic safety attachment. Made by Thos. Carlins Sons, Allegheny, Penn.
 1 Fairbanks Trussed Lever Scales, Platform 10' x 9' 1/2", capacity 26,000 lbs.
 1 Fairbanks Portable Scales, capacity 1000 lbs., large platform for barrows.
 Also a large lot of Pulleys, 6" to 36" diameter and 6" to 28" face, iron and wood split. Belting, Chesapeake brand, 29" to 32" and 4" to 14" wide.
 Rubber, 12, 13 and 18' long, 6" face.
 Also, complete machinery for washing clay.
 1 Imhauser Watchman's Time Detector, 10 stations.

KAOLIN MANUFACTURING CO.
Waynesville, N. C.

Machinery Bargains.

Second-Hand—Good Condition.

Vertical Boilers to 40 H. P., Hor. Tub. Boilers to 90 H. P., Locomotive Boilers 20, 60, 100 H. P., Westinghouse Engine 20 H. P., Chandler & Taylor auto., high speed 8x10, Hor. plain slide valve engine to 25 H. P., Steam pump all sizes, lot large valves.

Wood Mortisers, Boring machines, Gray & Wood planers, 26x6 and 26x12 double surfacers, Swing Saw, Jig Saw, Variety Moulder, 16" Fox Lathe, 16" Spinning Lathe, 5 speed lathes, 10" Sc. Cutting Lathe, 8" Boynton Shaper.

NEW MACHINERY.
 10" to 26" Screw Cutting Lathes, 20" to 28" Drill Presses, Power Hack Saws, Emery Grinders, Buffalo Forges, 3 1/2, 7 1/2 H. P. Gas Engines, 3 to 15 H. P. Vertical Engines, 12 to 30 H. P. Auto. High Speed Engines.

Shafting, Hangers, Pulleys, Belting, etc. Pipes, Valves, Fittings, the largest stock in the South. Write what you want or have to sell.

J. D. MALLORY,
BALTIMORE, MD.

Highest prices paid for Dynamos, Motors and Electrical Apparatus of any description.

Complete Stations purchased. Write us for full descriptions and get our cash offers.

J. W. KOHN & CO.
14 Merwin St., Cleveland, O.

FOR SALE.

1 5-Ton Electric Crane, 400 ft. travel, double track, 50 ft. span, to K. W. Motor, New; 1 Webster Heater and Purifier for 500 to 2000 H. P. Boilers, New, both very cheap; 1 G. & G. Air Compressor, also 1 Clayton, 10x12, Cheap; 1 G. & G. Vacuum Pump, 14x10x12, also 12 other pumps, large and small; 1 Blake Single Pump, 6x5, 14x10x12; 1 Knowles Single Pump, 14x10x12, 6x6, practically new, also 12 other pumps all sizes; 2 20-Ton Duggeons Improved Hydraulic Jacks; 1 No. 3 Dallet Portable Drill complete; 1 3/4" Cylinder Rand Drill complete; 16 to 20 to 60 H. P. Hor. Slide Valve Engines; 1 15 H. P. Center Crank and 1 25, 30 and 35 H. P. self contained, excellent condition; 1 8x10 Automatic Self Oiling, self contained Center Crank Engine, and 1 10x12 Erie Ball Engine, Both Practically New; 3 12 and 100 H. P. each, 2 20 H. P., 1 6 H. P. and 7 20 to 40 H. P. Hor. Return Tubular Boilers, All Guaranteed, complete, also 140, 45, 50 and 60 H. P. Vertical Boilers, complete, very cheap; 50,000 ft. Elevator Rope, New, guaranteed equal to any made, all sizes and lengths, and 2000 ft. 1" Crucible Steel, slightly used, also lot of other pumps, boilers, engines, dynamos, motors, new and second-hand rails, pipe, and anything you desire. Send us your inquiries, a wooden tanks, 2500 gal. capacity and one 5000 gal. round.

WANT TO BUY.

Lot of Wire Hoisting rope and cables, 3/8 to 3" diameter, new or second-hand; 15, 20 and 25 Gasoline Engines, second-hand; dynamos, motors, wooden or iron tanks, 600 to 3000 gallon capacity; 12 Hor. Slide Valve Engines, 10 to 60 H. P.; 5 Hoisting Engines, friction drums; 5 Air Compressors, steam driven, 300 cubic ft. and up; 8 to 150 H. P. Hor. and Ver. Boilers, complete; pumps, hoisting engines, rails, etc. We Buy Anything You Have to Offer. Give full description.

Anthracite Machinery & Supply Co.
ALLENTOWN, PA.

FOR SALE.

Partial List Second-Hand Machines

18"x5' Pratt & Whitney, rise and fall rest, with taper.
 14"x5' Puifnam, rise and fall rest.
 14"x5' Prentiss, rise and fall rest.
 14"x5' Bladell, rise and fall rest, with taper.
 15"x5' Poeter, rise and fall rest.
 15"x5' Prentiss, rise and fall rest, with taper.
 16"x5' Pratt & Whitney, rise and fall rest, with taper.
 16"x7' M. B. & C., plain rest.
 16"x10' Fay & Scott, compound rest.
 18"x5' Reed, plain.
 18"x5' Lodge & Davis, compound rest and taper.
 24"x10' No Name, incomplete.
 26"x5' Betts Lathe, compound rest.
 30"x5' Stark, plain.
 30"x14' Betts Lathe, compound rest.
 No. 2 B. & O. Turret.
 No. 14 Garvin Special Forming Turret Lathe.
 14"x5' Lodge & Barker Turret Lathe.
 14"x5' Johnson Turret Lathe.
 18"x5' Lodge & Davis Chucking Lathe.
 Six-Spindle Miles, Bement & Co. Arch Bar Drill.
 26" Bickford Upright Drill.
 20" Barnes Upright Drill.
 Three-Spindle Upright Plate Sensitive Drill.
 Three-Spindle Garvin Sensitive Drill.
 24"x24" Sellers Planer, one head.
 42"x12" 10' Whitcomb Planer, two heads.
 42"x12" 10' Betts Planer, one head.
 16" Smith & Mills Shaper.
 No. 2 Keyest Milling Machine.
 No. 2 Garvin Plain Milling Machine.
 No. 1 B. & S. Universal Milling Machine.
 No. 44 Garvin Plain Mill.
 No. 3 Garvin Plain Mill.
 No. 2 Garvin Plain Mill.
 No. 1 No. 44 Brainard Plain Mill.
 No. 4 Schleiners Double-Head Bolt Cutter.
 2" Pratt & Whitney Cutting-Off Machine.
 12" Lowell Machine Co.'s Slotter.
 Double-Head Pratt & Whitney Horizontal Boring Mill.
 Cold Saw, 19" Blade, Pump and Pan.
 30" Springfield Knife Grinder.
 Wells Bros. Cutter and Reamer Grinder.
 Springfield Tool Grinder, 36" Wheel, with pump.
 2 Speed Lathes.
 4 35 H. P. Portable Boilers.
 1 Blacksmith Bellows.
 Also a complete line of new machines. Correspondence solicited.

BROWN & ZORTMAN MACHINERY CO., PITTSBURG, PA.

FOR SALE.

Five Blowing Engines.

36" Steam Cylinder, 84" Air Cylinder, 54" Stroke.

Engines were built by Cuyahoga Engine Works and can be seen in operation at our plant at Columbus, Ohio. Can be delivered about Nov. 1st.

The Columbus Iron & Steel Co.
COLUMBUS, OHIO.

FOR SALE.

1-54 in. x 12 ft. horizontal tubular boiler.
 1-12x30 horizontal engine.
 1-7 and 14x10 fore and aft marine engine.
 6 steam pumps—all sizes.

E. J. CODD CO., Baltimore, Md.

FOR SALE.

We have over 300 assorted size Machine Tools of every description. Send us your wants.

Girard Machine & Tool Co.

491 N. Third Street, PHILADELPHIA, PA.

MANUFACTURERS' RECORD.

CAN YOU USE THESE?

- 11 K.&J. Cars, 36-in. ga., 3-yd at \$50
 30 Western, 24-in. ga., 1 1/2-yd., at \$30
 9x14 Porter 36-in. ga. Dinkie, \$2,400
 12x18 Rogers 36-in. ga. Dinkie, \$3,750

All the above for immediate shipment. Telegraph or "long distance" me if interested. I have just issued a printed list of some special bargains, covering new and second-hand machinery generally, for contractors, railroads, mines, quarries and manufacturing plants.

WILLIS SHAW, Machinery, 171 LaSalle St., Chicago

BARGAINS FOR QUICK DELIVERY.

- No. 2 Gates Crusher.
 No. 3 Gates Crusher.
 No. 5 Style B, Gates Crusher.
 Double column Drop Hammer, cylinder 14"x 38", fine order.
 Good Second-Hand Engines.
 12-ton Kelly Roller, fine as new.
 New Well Drilling Machine, cheap.
 Marion AA Shovel, fine condition.

WE SELL
 Engines, Boilers,
 Pumps and Quarry
 Supplies,
 Concrete Mixers,
 Horse Rollers,
 Steam Drills,
 Air Compressors,
 Belting, Hose,
 and a full line of
 Contractors' Supplies.

CONTRACTORS' SUPPLY & EQUIPMENT CO., 232 Fifth Avenue, CHICAGO.

Easton Foundry & Machine Co.

Main Office and Works, Easton, Pa.
 New York Office, 36 E. 22nd St.

BEAMS, CHANNELS and ANGLES.

IMMEDIATE DELIVERY.

CUT TO LENGTH. WRITE FOR QUOTATIONS.

Beams	Channels	Angles—Even Legs
6-in..... 12 1/2 lbs.	6-in..... 8 lbs.	(Continued)
7-in..... 15 "	7-in..... 9 1/2 "	4-in. x 4-in. x 5/16-in.
8-in..... 18 "	8-in..... 11 1/4 "	6-in. x 6-in. x 5/16-in.
9-in..... 22 "	10-in..... 15 "	6-in. x 6-in. x 5/16-in.
9-in..... 21 "	12-in..... 20 1/2 "	
9-in..... 25 "	15-in..... 30 "	
10-in..... 30 "		
12-in..... 40 "		
12-in..... 40 "	2 1/2-in. x 2 1/2-in. x 5/16-in.	
15-in..... 42 "	3-in. x 3-in. x 5/16-in.	
15-in..... 50 "	3-in. x 3-in. x 5/16-in.	
18-in..... 55 "	3-in. x 3-in. x 5/16-in.	
20-in..... 65 "	3 1/2-in. x 3 1/2-in. x 5/16-in.	
24-in..... 80 "	4-in. x 4-in. x 5/16-in.	

All angles, channels and beams up to and including 15-in.x50-lb. are carried in 60-ft. and 65-ft. bars; 18-in. 55-lb. beams in 30-ft., 33-ft. and 36-ft. bars; 20-in. 65-lb. beams in 35-ft., 38-ft. and 40-ft. bars; 24-in. 80-lb. beams in 40-ft., 45-ft. and 48-ft. bars.

CASTINGS OF EVERY DESCRIPTION AND UP TO 10 TONS

BRIDGES, BUILDINGS, ROOFS AND OTHER Structural Steel

FOR SALE.

- 1 300 H. P. Cross compound Slater engine, \$3000.
 1 18x42 Harris Corliss, overhauled, \$750. 1 12x18 Skinner engine, \$300. 1 34x72 George Corliss, with balance wheel, \$600 per H. P. 1 30x72 George Corliss, with balance wheel, \$600 per H. P. 1 24x48 Woodruff & Beach, automatic, \$500. 1 20x60 George Corliss engine, \$1200. 1 10x24 Ryder, automatic, \$150. 1 6x8 Fitchburg, vertical, \$85. 1 iron stack, 5x36, \$150. 1 Corliss, segment wheel 16x60" face, 1 hydraulic press, 8" ram, 48x36" platen, 1 30 to 40 H. P. quill, practically new, including boxes, 3 tanks, 6" diameter, 8" deep, 3/4 shell, \$85 each. 1 400 H. P. Berryman heater, \$150. 1 100 H. P. Berryman heater, \$75. 1 75 H. P. National heater, \$50. 1 75 H. P. National heater, \$50. Lot of pulleys 6" to 16" diameter. 1 400 H. P. Knowles jet condenser, \$350. 1 250 H. P. Deane condenser, \$300. 5 7 1/2"x18" H. R. T. boilers, first-class condition, without fittings, \$300 each. F. H. DAVIS & CO., 53 State St., Boston, Mass.

FOR SALE.

- 1 65 ton Vulcan steam shovel. 1 50 ton Vulcan steam shovel. 10 9x14, 36" gauge, saddle tank, contractors' locomotives. 2 30 ton 4-wheel, standard gauge, saddle tank locomotives. 4 American type, 35 ton, standard gauge locomotives. 1 Baldwin consolidation, standard gauge, 50 tons, 25.5 yd. two way standard gauge, steam frame Western dump cars. 5 36" gauge 2 1/2 yd. swing dump cars. 5 36" gauge 3 yd. side dump cars. 1 9x15 Climax crushing plant, complete with engine and boiler. 1 12x24 Climax crushing plant, complete with engine and boiler. 2 New Era graders, complete with traction engines. 1 Western spreader, mounted on standard gauge car.

If you want to buy or sell contractors' plant of any description, we can help you. Correspondence solicited.

CONTRACTORS' EQUIPMENT CO.

1124 Betz Bldg., Philadelphia, Pa.

Baker, Stillwell & Hart

Manufacturers' Agents,

Room 431 Chalifoux Building,

BIRMINGHAM, ALABAMA.

- Pig Iron, Rails, Nuts and Washers, Babbitt Metal, Coal, Bolts, Tool Steel, Coke, Nails, Engines, Steel Shapes, Foundry Supplies, Boilers, Cars, Car Wheels, Castings, Second-hand Machinery of all kinds.

FOR SALE.

- 1 18x42" Left Hand Harris Corliss Engine. Thoroughly Repaired. GUARANTEED good as new.

CLYDE MACHINE WORKS,
89th St. and Union Ave. CHICAGO, ILL.

FOR SALE. BRIDGES.

150 ft. steel plate girder bridge, double track.
1500 ft., 4 spans 125 ft. each, riveted pier bridge, double track, 24 ft. wide. Viaduct joining pier 570 ft. double track.

CARS.

73 80,000 lb. hopper bottom ore cars.

100 tons 80-lb. Relaying Steel Rails.

HENRY A. HITNER'S SONS,

Araming Ave. and Huntingdon St.

PHILADELPHIA, PA

Nearly as Good as New.

	Cost	Price
Drilling Machines, Barnes, No. 20	\$60.00	\$15
Blower, No. 3, Pressure	22.50	15
Grinding Machine, B, Standard	30.50	23
Grindstone, power, 30-in.	25.50	18
Motor, Sprague, 2-H.P., 500 volts	117.00	90
Motor, Sprague, 4-H.P., 500 volts	162.00	125
Pumping Jack, Hill, geared	20.00	15
Rope Drive and Countershaft	38.00	25
Steel Balls, 1 inch, 96	6.62	2

ALL F. O. B. WASHINGTON.

FISHER & SAXTON COMPANY,
123 G Northeast, WASHINGTON, D. C.

FLOUR MILL MACHINERY.

ROLLER MILLS—Double Stands. One 6x12, three 6x18, three 9x18 Case. One 9x24, one 9x14 Allis. One 9x24 and one 9x30 Todd & Stanley.

IRON FRAME VERTICAL FRENCH BURR MILLS. Two 30" Harrison, two 20" Sprout, Waldron, Three 18" Richmond, one 14" Sprout, Waldrone.

WOOD FRAME HORIZONTALS. One 22" Bradford, and one each, 18", 24", 30" and 36" Straub. Stock constantly changing. Write for what you want.

STRAUB MACHINERY CO., Cincinnati, Ohio.

18"x42' Hewes & Phillip's right-hand Corliss engine, wheel in $\frac{1}{2}$, 14"x38" face. Berryman Heater, Jack shaft, etc., low price, gilt edged condition.

COUSE & BOLTON,
NEWARK, N. J.

Wheels and Axles

FOR SALE, CHEAP. 20 pair 5 ft. Archibald Wheels (iron hub) with steel axles, all new. These are VERY SUITABLE for MAKING TRUCKS or DOLLIES for HANDLING PILES, POLES, TIMBER, etc. A bargain for any such purpose. For full description address to FISHER & SAXTON CO.

123 G St., Northeast, Washington, D. C.

FOR SALE.

Drain or Culvert Pipe.

125 lengths of 30" Cast Iron Pipe, practically as good as new, at Charleston, S. C.

FRANK SAMUEL,
Harrison Building, PHILADELPHIA, PA.

FOR SALE.

Kenyon Tentering and Drying Machine.

Used only one year. In perfect order.

Address SUMMIT PROOFING COMPANY,
24 Wooster St., New York.

New and Second-Hand
Iron Tools and Woodworking Machinery

Corliss and Double Valve Engines for Trolley Roads and Electric Lighting Stations.

H. C. BAKER & CO.
114 N. 3d Street, Philadelphia, Pa.

2ND-HAND TOOLS.

Lathes.
18 in. x 8 ft. Fifield.
20 in. x 4 ft. New Haven.
27 x 14 Geo. Place, heavy.
28 x 18 ft. Fay & Scott.
17 Stewart Speed Lathes.
18 in. x 8 ft., comp. rest, Lowell.
Axle Lathes, Bement (2).

Planers.
24 in. x 4 ft. heavy, Leeds.
16 in. x 24 in. x 7 ft. New Haven.
Shapers.
16 in. Geared, Western.
18 in. Ohio, crank.
22 in. Prentiss-Juengst Friction.

Drills.
Ceiling, 3 ft. arm, Radial.
Ceiling, Boilmakers.
30 in. Prentiss Bros.

Screw Machines.
No. 90 Garvin, 14 in., with wire feed.
Garvin Hub Mech, 4½ in. hole.

Write your requirements.
G. L. BENNETT, 118 Liberty St., New York.

GRINDERS.

No. 2 Surface, Universal Co.'s.
24 in. x 18 ft. Springfield Surface.

WOOD WORKING.

No. 1 Greenlite, Auto. R. E. Cut-off Saw.
16 in. Goodell & Waters Planer, 1½ in.
Pryor Planer and Joiner, Ex. heavy 4 side Timber Planer and seven other machines.

MISCELLANEOUS.

80 Arbor Gage Fox Lathe, 60 lb. Bilm Drop Hammer.
10 lb. Merrill Drop " Oil Separator, American.
No. 1 B. & S. Univ. Miller. No. 2 P. & W. Screw Slotter.

13 in. Bement Slotter.
16 H. P. N. Y. Safety Engine.
Garvin Hub Mech, 4½ in. hole.

Write your requirements.
G. L. BENNETT, 118 Liberty St., New York.

BARGAINS.

30 in. x 12 ft. Eng. Lathe, N. H. V'n.

26 in. x 14 ft. Eng. Lathe, Davis.

24 in. x 12 ft. Eng. Lathe, Davis.

20 in. x 10 ft. Eng. Lathe, R. M. & C.

62 in. Radial Drill, Mueller, New.

72 in. Radial Drill, Mueller, New.

3-20 in. B. C. & S. F. Drills, Davis.

3-20 in. B. C. & S. F. Drill, New Haven.

16 in. Crank Shaper, Gould & Eber.

24 in. Tpl. grd. Shaper, Lodge & B.

72 in. x 30 in. x 12 ft. Planer, Pond.

72 in. x 60 in. x 15 ft. Planer, Steepeo.

1 in. Univ. Grinder, Diamond.

No. 3 Univ. Grinder, Diamond.

No. 3 Profiler, Garvin.

No. 14 Univ. Miller Becker Brain'd

No. 1 Hand Miller, Garvin.

No. 18 Bilm Pattern Press.

No. 19 Bilm Pattern Press.

No. 36 Power Press, Niagara.

No. 3-0 Geared Shear, New Doty.

25 in. Heavy Boiler Maker's Punch

9 in. Slotter, New Haven.

16 in. Slotter, Bement.

60 in. H'vy Boring Mach., Bement.

2 in. Pipe Machine, Jarecki.

900 lb. Drop Hammer, Merrill Bros.

40 in. x 8 ft. Horiz. Boring Machine.

Grant & Bogert Milling Machine.

SENSITIVE DRILLS, SCREW MACHINES, MILLERS, PRESSES, Etc.

Can give bargains at all times in new and second-hand machines for immediate shipment.

GEO. E. AFFLECK,
107 Liberty St., N. Y. C.

A Splendid Lot of Tools.

LATHES.

14x20 Hamilton La., C. B. and 18 in. 3-j. Univ. chck. fitted.

14x20 Blaisdel Eng. La., R. E. 18x24 Stud Lathe.

16x20 Putnam Eng. La., R. E. 16x20 Davis & E. Eng.

14x20 Hendey N., C. R. 20x20 Ames Eng. Lathe, P. R. 31x18 Lathe & M., P. R. 22x8 Eng. Lathe, P. R. 24x10 Lathe & M., C. R. 11x16 Fish Eng. Lathe, Plain M., Power and Feed.

14x20 Lodge & Davis Fox Turret La. No. 32 Monitor Lathe.

SCRIMMERS.

20x20x4 Lathe & Morse. 22x16x4 Phoenix. 22x22x6 Powell Planer. 28x28x8 Clement. 28x28x6 Powell Planer.

DRILLS.

70 in. Gang Radial Drill. 30 in. Prentiss Bros. Drill, B. G. P. F.

14 in. 1-speed Drill, Parr. No. 2 two-speed Drill, Garvin.

No. 4 four-speed Drill, Garvin.

MILLING MACHINES.

16x18 Plain Miller, Garvin, with vertical speed attachment.

No. 3 Hand M. M., Garvin.

Photo and description on application.

THE GARVIN MACHINE CO.

Spring and Varick Sts., NEW YORK.

FOR SALE.

Immediate Delivery.

One Westinghouse Standard Engine, 11211 Est. H. P. 60.

One Westinghouse Standard Engine, 11210 Est. H. P. 60.

Two Return Tubular Boilers, each 60"x18", Est. H. P. 80 each.

Two Smith-Valle Single Hydraulic Pumps, 12x1½ x 14.

The above machinery is in good order and was in operation up to April 30th, when it was taken out on account of enlargement and changes in our steam plant and other machinery equipment.

Address

NORTH CAROLINA COTTON OIL CO.

CHARLOTTE, N. C.

Two 75 H. P. Continental Boilers, 100 lbs.

One 125 H. P. Marine Firebox Boiler, 190 lbs.

Three 40 H. P. Return Tubular.

Two 54x12 Return Tubular.

Four 4 H. P. Upright Boiler and Trimmings.

One 75 H. P. Firebox Boiler, 110 lbs.

Two 150 H. P. Return Tubular Boilers.

One 100 H. P. Corliss Engine.

One 300 H. P. Meyers Engine.

One 40 H. P. Murray Iron Works Engine.

One 20 H. P. Dutton Hor. Engine and Trimmings.

One 20 H. P. Raming Hor. Engine.

One 18 H. P. Waterlow Hor. Engine & Trimmings.

One 16 H. P. Upright Engine.

One 30 H. P. Lambert Gasoline Engine.

One 30 H. P. Otto Gasoline Engine.

One 20 H. P. Slide Valve Engine.

One 20 H. P. Skinner Center Crank Engine.

One 20 H. P. Center Crank Engine.

One 15 H. P. Vertical Engine.

One 3½ H. P. Globe Gasoline Engine.

One 25 H. P. Columbus Gasoline Engine.

And many others. Write for prices.

D. GRUPE & SONS, Davenport, Iowa.

FOR SALE.

12x22 R. H. Watt Campbell Corliss Engine.

10x12 Ideal Automatic Engine.

10x10 Worthington Duplex Pump.

15 ton Road Roller for sale or rent.

Little Giant Steam Shovel.

10x7x10 Worthington Duplex Pump.

Iron Tanks, 300 to 1000 gallon capacity.

JAS. S. BRADEN, 26 Cortlandt St., New York.

FOR SALE.

Immediate Delivery.

AIR COMPRESSORS.

Two Rand Straight Line, "Class C," 18"x18"x24".

One Ingersoll-Sergeant, Class "G," Duplex, 20"x20"x24".

One Norwalk (3 stage) 14"x14"x16".

Two Rand Duplex (3 stage) 16"x14"x16".

One Rand Duplex Corliss, 20"x20"x24".

BOILERS.

Four Babcock & Wilcox Water Tube, 300 h. p. each, shaking grates.

Eight Horizontal Return Tubular, 60"x16".

Three Horizontal Return Tubular, 72"x12".

Four Horizontal Return Tubular, 72"x16".

Three Horizontal Return Tubular, 60"x18".

Nine Horizontal Return Tubular, 72"x18".

ENGINE.

One 20"x40" Buckeye, girder frame, band wheel in half, 12"x31" face.

LOCOMOTIVES.

36" gauge Locomotives.

Four H. K. Porter 9"x14", saddle tank.

Two Vulcan 9"x14", saddle tank, built 1900.

HAILS.

200 tons 30-lb. steel relayers.

200 tons 35-lb. steel relayers.

300 tons 50-lb. steel relayers.

CARS.

Eighty 8,000-lb. Ore Hopper Cars, made by Allison Mfg. Co.

PUMP.

One Worthington Compound Duplex Condensing Pump, 25"x43"x17½"x36", 20" suction and 18" discharge.

Capacity, 3,000,000 gallons.

All of the above in A-1 order and ready for immediate delivery.

We buy and sell Air Compressors, Engines, Locomotives, Rail Cars, Bridges, Boilers, Hoisting Engines and Pumps, etc. Complete plants purchased.

FOR SALE.

We own a choice lot of
RELAYING
25 lb. and **STEEL RAILS**
30 lb. and Splice Bars and Spikes for same. Also a
number of Frogs, and Stub and Split
SWITCHES.

If you want to buy either new or re-laying
Rails—any weight, or Switches, write us.

ROBINSON & ORR,

419 Wood Street, Pittsburgh, Pa.



MANUFACTURERS

Light Steel Rails

16-20-25-30-35 and 40 lbs. per yard.

Prompt shipment on all orders.

SCHONTHAL IRON & STEEL CO.

Mills and General Offices,

CUMBERLAND, MD.

**N. Y. Elevated R. R.
LOCOMOTIVES**

Ready for Immediate Delivery.
Excellent Condition.

4' 8½" Gauge, Forney Type, Cylinders
11" x 14", 11" x 16", 12" x 16".
Suitable for Logging Roads, Contractors, Switching, &c.

BENJAMIN WATSON,
(Coffee Exchange Bldg.)
68 to 70 Beaver Street, N. Y. CITY.

Steel Rails, Cars, Locomotives, R. R. Supplies.

ST. LOUIS' LARGEST SCRAP
IRON HOUSE.

Cohen-Schwartz Rail and Steel Co.

Head Office and Plant: Main & North Market Sts.
Branch Office and Yards: Foot of Mound St.

ST. LOUIS, MO.

Correspondence Solicited.

LOOK THIS OVER.

For Sale or Rent.

One 7x12, 42" gauge H. K. Porter 42" gauge loco.
One 8x16, 42" gauge W. H. Bailey & Co. saddle
tank locomotive.
One 10x12 standard gauge dummy type locomotive.
Two 16x24 standard gauge American type with 8
wheel tenders.
One 4-ton 36" gauge loco., also several 30" gauge.
About 25, 42" gauge 4 yard capacity dump cars,
O'Connor patent.
12 36" gauge 2½ to 3 yard cars thoroughly rebuilt,
good as new.
One Worthington compound duplex steam pump,
13x18½x10¾x10.
One 25 h. p. and 12 h. p. traction engine; several
boilers and engines, all sizes.
Correspondence solicited.

HARPER MACHINERY CO.
Park Row Building, New York.
Yards and Shops, Newark, N. J.

FOR SALE.

300 tons 60½-lb. steel relaying rails with angle bars,
Alabama and Georgia delivery.
900 tons 70-lb. steel relaying rails with angle bars,
Ohio delivery.

500 tons 45-lb. steel relaying rails with angle bars,
Ohio delivery.

Second-hand locomotives, coaches, steam shovels,
and other railway and contracting material.

THE ISAAC JOSEPH IRON CO.
525-531 Hunt St., Cincinnati, Ohio
532-544 Monadnock Block, Chicago, Ill.

RAILS—LOCOMOTIVES.

400 tons 35 and 40-lb. steel relay rails.
Locomotives—Narrow and standard gauge. 50
locomotives on hand.

Southern Iron and Equipment Co.
ATLANTA, GA.



SOLE
MANUFACTURERS
OF
IMPROVED RIGID & SPRING FROGS CROSSINGS
SINGLE & THREE THROW SPLIT SWITCHES
FIXED & AUTOMATIC SWITCH STANDS, STEEL
DIE FORMED RAIL BRACES, SWITCH FIXTURES, ETC.

FOR SALE.**New Light
Steel Rails,**

ALL WEIGHTS.

WITH

Track Fastenings.

THE STEEL RAIL SUPPLY CO.

106 Broadway,
NEW YORK, N. Y.

FOR SALE.

36" Gauge Equipment.
3 Locomotives, Mogul Type, in good condition,
one 13" x 16" Cylinder and two 13" x 18" Cylinder,
H. K. Porter. A lot of Box Cars. All for delivery
in June or July.

3 Passenger Coaches.
1 Combination Baggage and Passenger Coach.
Immediate Delivery.

Standard Gauge.

We also offer, for immediate delivery, second-
hand standard gauge Locomotives from 13" to 18"
cylinders, American and 10-Wheel Type. Relay-
ing Rails.

**SAVANNAH LOCOMOTIVE WORKS
& SUPPLY COMPANY,**
Savannah, Ga.

FOR SALE.

STANDARD GAUGE PRIVATE HORSE OR STOCK
CAR, adjustable stalls for carrying sixteen heads,
complete in every detail, first-class condition.
BALDWIN STANDARD GAUGE DUMMY LOCO-
MOTIVE, 9x12. Has been thoroughly overhauled and
put in first-class condition.

Both of the above will be sold at a low price.

POULTERER & CO.
410 Bulitt Building, PHILADELPHIA, PA.

LOCOMOTIVES.

50-ton Freight and Switch Engines
for prompt delivery.

RAILS AND CARS.

**MAY & SPALDING,
ATLANTA, GA.**

FOR SALE.**New Steel Tee Rails**

60 to 80 lb. A. S. C. E. section.
Delivery guaranteed.

RAILWAYS BUILT AND FINANCED.
C. H. RUTTER, Easton, Penna.

FOR SALE.

Two hundred and fifty tons of new forties; two
hundred and fifty tons new thirties; one 16" cyl.
Roger Locomotive, good condition; one 15" cyl.
Baldwin Locomotive, good condition; one 15-ton
standard gauge Locomotive, for wood or iron rails;
two 16-ton 14" cyl. stand. gauge Locomotive, fine
condition. Apply.

**SABEL BROTHERS,
Jacksonville, Fla.**

NEW STEEL RAILS.

We have a large quantity of steel, A.
S. C. E. section, various weights, with or
without fastenings, for immediate or
future delivery. Also have "seconds"
for sale.

O. W. DAVIS & CO., 68 Wall St., New York City.

RAILS 8 to 40 lb. New Steel
Relayers, all weights.

LOCOMOTIVES 8 to 60 tons, Standard and
Narrow Gauge.

EQUIPMENT and Supplies of all kinds.

WESTERN SUPPLY & MFG. CO.

East St. Louis, Ill.

STURTEVANT**MOTORS**

In small and medium sizes
Completely enclosed
Readily portable



Blowers
Exhausters
Steam Pans
Electric Pans
Engines
Generating Sets
Forges
Exhaust Heads
Steam Traps
Heating
Ventilating &
Drying Apparatus
Mechanical Draft
155

B. F. STURTEVANT CO. BOSTON.
NEW YORK PHILADELPHIA CHICAGO LONDON

LOCOMOTIVES

For all Classes of Service.

CARS — **COACHES****SPECIAL**

40 to 50 ton Moguls—40 to 51 inch centers.
50 ton Baldwin Eight Wheelers.
60 ton Baldwin Consolidations.
80 ton Consolidations—81 inch centers.
Passenger Coaches—excellent condition.
Immediate delivery.

FITZ-HUGH-LUTHER CO.

Successors to Fitz-Hugh & Co.

NEW YORK, 141 Broadway.

Main Office, CHICAGO, Monadnock Block.

**LOCOMOTIVES,
COACHES****AND
CARS**

of all descriptions.

F. M. HICKS,
277 Dearborn St.
CHICAGO.

**FOR SALE.**

Four (4) 18" x 22" Cylinder Baldwin, ten-wheel Freight Standard Gauge Locomotives, weight
about 42 tons; six drivers, 30" diameter; separate eight-wheel tender.

One (1) 14" x 22" Cylinder, Baldwin six-wheel Locomotive (four drivers 30" diameter, pony
truck in front, with separate eight-wheel tender).

Twenty (20) Flat Cars, 30' long, 20 tons, capacity, Diamond Trucks, M. C. B. Automatic
Couples, hand brakes.

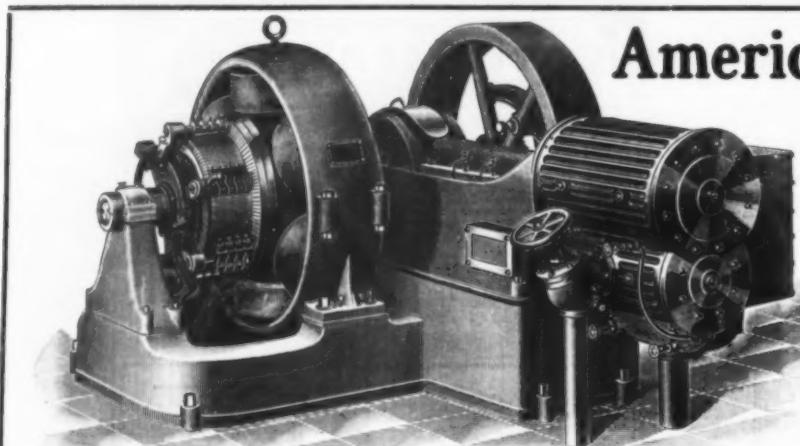
Twelve (12) Coaches, 51' over all; carry 54 passengers; good coaches; cheap.

Two (2) Baggage Cars, same length; carry 28 passengers; all equipped with Westinghouse
Air Brakes.

NEW YORK EQUIPMENT COMPANY,

18 Broadway (Room #26), New York.

ELKHART FROG & CROSSING WORKS, Elkhart, Ind.
FROGS, SWITCHES, CROSSINGS, STANDS, ETC.



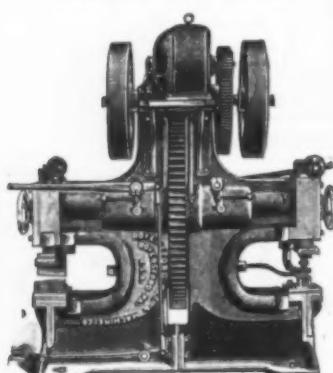
New York Office: 95 Liberty Street.

A. St.C. Dunstan, Southern Agent, Auburn, Ala.

60 Raritan Ave., BOUND BROOK, N. J.

**Royersford
Punch and Shears**

Motor or Belt Drive.



Adapted for Structural Plants, Railroad Shops, Car Builders, Wagon Works, Machine and Blacksmith Shops. Built right. Honestly rated. Are money makers. Ask for catalogue.

Royersford Foundry & Machine Co.
Royersford, Pa., U. S. A.



The value of an abrasive depends upon its hardness and sharpness—The grinding wheel, for instance, that does the most work in a day—and that works the greatest number of days before wearing out—is the one that saves money in shop practice—

Carborundum

is next to the diamond in hardness and sharpness. It is the greatest abrasive the world has ever known.

Write for the booklet.

**THE
CARBORUNDUM
COMPANY**
Niagara Falls, N. Y.

**WE WANT TO REPRESENT
MANUFACTURERS**

for all classes of machinery and building material for this immediate vicinity and for the Southern States, and solicit your account as distributing agents.

A good opportunity is offered by us to make quick sales. Address

J. J. ROBERTS & CO.

NEWPORT NEWS, V.A.

90% of all the Buckets used in the construction of the N. Y. Rapid Transit Subway are manufactured by the

**G. L.
Stuebner**
IRON WORKS,
167-177 E. 14th ST., Long
Island City, N. Y.

Catalogue No. 444 gives full information of Buckets, Narrow Gauge Railways, Cars, etc., for every purpose.

For
**HYDRAULIC
TOOLS**

See Catalogue.
WATSON-STILLMAN CO.
201-11 E. 43d St. NEW YORK.

JACKS
PUMPS
PRESSES
RIVETERS
VALVES



A THOROUGH TEST OF
material is made in the vitrified process by which the

"ABRASIVE"

EMERY WHEEL

is manufactured. Nothing but the very best material will stand the intense heat to which it is subjected. That's why we're able to guarantee them to cut as fast as any emery wheel made.

ABRASIVE MATERIAL CO.

PHILADA., PA.

THE MONARCH Emery and Corundum Wheel Company,

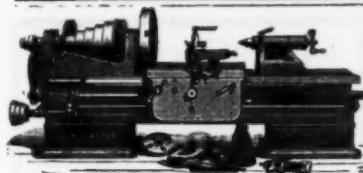
Manufacturers of

EMERY and CORUNDUM WHEELS.

The Greatest Saw Gummer and Knife Grinder Wheel in the World.
Factory and Main Office: 508-514 Liberty St., Camden, N. J., U. S. A.

Emery Wheels
Will Run Wet or Dry.

CORUNDUM WHEELS.
Polishers and Machinists' Supplies, Rub Stones, Emery Wheel Machinery, and Diamond Tools.
Vitrified Wheel Co., Westfield, Mass.



**SCHUMACHER & BOYE,
Engine Lathes,
Cincinnati, Ohio.**



Tools for Sheet Metals *Presses, Punches, Forming Rolls.*

No. 6
Adjustable Press

Squaring and Rotary Shears,
Tinsmiths' Tools, etc., etc.

**NIAGARA MACHINE & TOOL WORKS,
BUFFALO, N. Y.**



Ready for Immediate Shipment.

We have the following new tools in stock ready for immediate shipment to any part of the country.

Two 38 in. x 30 ft. New Haven Engine Lathes.
One No. 4 Brown & Sharpe Universal Milling Machine.
One 6 ft. Fosdick Machine Tool Co. Full Universal Radial Drill.
One 36 in. x 22 ft. Schumacher & Boye Triple Geared C. R. Engine Lathe.
One 26 in. x 48 in. x 16 ft. McCabe Double Spindle New Style Engine Lathe with Geared Face Plates.
One 24 in. x 16 ft. Draper Engine Lathe with Triple Gears and T. A.
One 28 in. x 16 ft. Draper Engine Lathe with Triple Gears, C. R. and T. A.

All Kinds of Machine Tools and Machinery Supplies.

Write today for our Catalogue.

BAIRD MACHINERY CO.

121-125 Water Street,

PITTSBURG, PA.

**Sheet Metal Working
MACHINERY.**

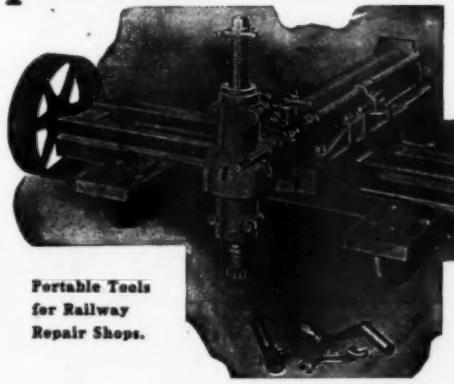
See large ads. in last and next issues.
J. H. ROBINSON & CO., Cincinnati, O.

CHAS. LEFFLER & CO.

49-61 Clymer Street,
BROOKLYN, N. Y.

MACHINERY FOR THE MANU-
FACTURE OF SHEET METAL GOODS.

PORTABLE MILLING MACHINE



Portable Tools
for Railway
Repair Shops.

This machine is designed for facing

Steam Engine Valve Seats

in solid steam chests especially, but is used on various kinds of work where it is more convenient to carry a portable machine to the work, than to carry the work to the shop. It is strongly geared, has power feed in both directions, and can be used in any posture—horizontal, vertical or inclined. It works accurately and rapidly and can be run by hand-wheel, small steam engine, air or electric motor.

Machines of Any Size Built to Order.

H. B. UNDERWOOD & CO., Phila., Pa.
L. B. FLANDERS MACHINE WORKS.

The Bailey-Lebby Co.

MACHINERY and SUPPLIES.

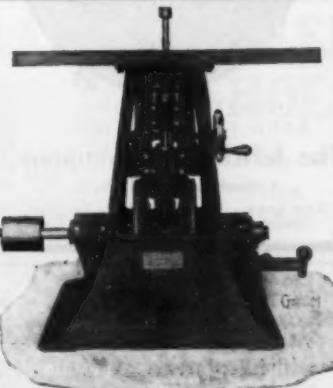
AGENTS FOR

Lodge & Shipley Lathes
Cincinnati Milling Machines
Cincinnati Shapers
Cincinnati Planers
Cincinnati Upright Drills
Bickford Radial Drills

A line of good, reliable tools.

CHARLESTON, S. C.

Try The B-L Co. Anti-Friction Babbitt.



Single Spindle Reversible Shaper.

Single and Double Spindle Shapers, Combination Shaper and Carver, Cutter Heads, Wing Cutters, etc. Designers of Special Machinery.

Moshannon Manufacturing Co.
PHILIPSBURG, PENNA.

A few of the "56 POINTS OF VANTAGE" embodied in

The New Bickford Radial.

The arm is made in pipe section in order to overcome the combined stresses of twisting and bending.

Back-gears furnish four changes of speed, each of which transmits to the spindle more than double the pulling power of the next faster one.

The spindle is provided with a safety stop that throws out the feed when the spindle has reached its limit of movement. Our booklet, "56 Points of Vantage," tells the rest. Send for it.

**The Bickford Drill & Tool Company,
CINCINNATI, OHIO, U. S. A.**

AGENTS. J. H. McArdle, New Orleans, La. Echols-Smith Hardware Co., Birmingham, Ala. The Fairbanks Co., Baltimore, Md. Georgia Supply Co., Savannah, Ga. W. E. Shipley, Philadelphia, Pa. Prentiss Tool & Supply Co., New York, Buffalo and Boston. Brown & Zortman Machinery Co., Pittsburgh, Pa. Marshall & Huschart Machinery Co., Chicago, Cleveland and Cincinnati. J. W. Wright & Co., St. Louis, Mo. Henshaw, Bulkeley & Co., San Francisco and Seattle, Wash. Robinson & Cary Co., St. Paul, Minn. Scott Supply & Tool Co., Denver, Col. The Henry Walk Co., Norfolk, Va.

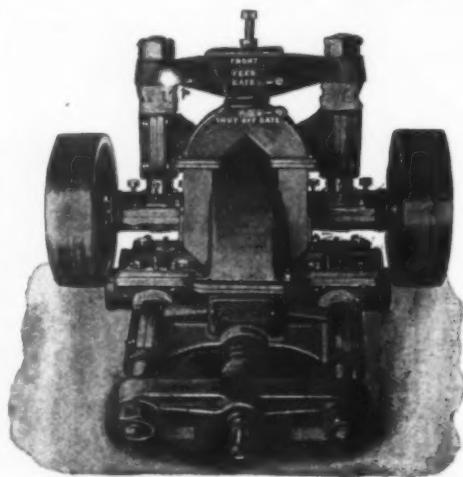


KENT MILL

Large Capacity

Little H. P.

Great Durability



Makes
a
Saving
of
50%

Grinds { Pebble Rock, 4 to 5 tons per hr., 90 per cent. 60 mesh.
Other Phosphate Rock, 5 to 6 tons per hr., 90 per cent. 60 mesh.

The above is a conservative statement. The Kent Mill has a record of 7 tons per hr., 90 per cent. 60 mesh, with less than 25 H. P.

SOME PEOPLE WHO USE KENT MILLS:

Armour & Co.
Alabama Chemical Co.
Armour Fertilizer Works
Baugh Chemical Co.
Baugh & Sons
J. & J. Cunningham, Ltd.
Cherokee Chemical Co.
Eureka Fertilizer Co.
Federal Chemical Co.
Griffith & Boyd
Grasselli Chemical Co.
Goulding Fertilizer Co., Ltd.
Goulding Fertilizer Co.,
W. & H. M. Goulding
Hubbard Fertilizer Co.
A. W. Louth
Lawes Chemical Manure Co.
Lowell Fertilizer Co.
Montgomery Fertilizer Co.
Mobile Phosphate Co.

Baltimore, Md.
Montgomery, Ala.
Atlanta, Ga.
Baltimore, Md.
Philadelphia, Pa.
Leith, Scotland.
Atlanta, Ga.
Perryville, Md.
Nashville, Tenn.
Baltimore, Md.
Birmingham, Ala.
Dublin, Ireland
Pensacola, Fla.
Belfast, Ireland
Baltimore, Md.
Philadelphia, Pa.
London, Eng.
Lowell, Mass.
Montgomery, Ala.
Mobile, Ala.

Morgan, Mooney & Co.
Meridian Fertilizer Co.
William C. Newport Co.
Provident Chemical Works
Piedmont-Mt. Airy Guano Co.
Rasin-Monumental Co.
F. S. Royster Guano Co.
F. S. Royster Guano Co.
Swift & Co.
Swift & Co.
Southern Chemical Co.
Schnorf Bros.
Skansa Superphos. & Svanfelsyre,
Standard Chemical & Oil Co.
I. P. Thomas & Son Co.
Tennessee Phosphate Co.
Virginia State Fertilizer Co.
Virginia-Carolina Chemical Co., several plants.
T. Vickers & Sons
Walker, Stratman & Co.

Dublin, Ireland
Meridian, Miss.
Philadelphia, Pa.
St. Louis, Mo.
Baltimore, Md.
Baltimore, Md.
Norfolk, Va.
Columbia, S. C.
Chicago, Ill.
St. Louis, Mo.
Winston, N. C.
Utikon, Switzerland
Helsingborg, Sweden.
Troy, Ala.
Philadelphia, Pa.
Ridley, Tenn.
Lynchburg, Va.
Widnes, England
Pittsburg, Pa.

THE KENT MILL CO., 170 Broadway, New York.

DOUBLE REVOLVING SCREENS.
SEND FOR CATALOGUE.

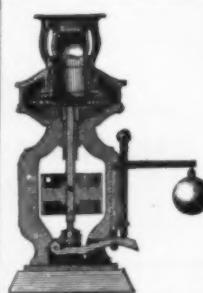
JEFFREY ELEVATING—CONVEYING—
COAL WASHING—COAL MINING—SCREENING—
MACHINERY

Electric Locomotives

Spiral Conveyors, Cable Conveyors, Chains, Screens, Sprocket Wheels, Rubber Belt Conveyors, Dredges, Coal Washers, Coal and Coke Crushers, Coal Mining Machines, Elevator Buckets, Barrel Elevators, Drills.

EXPANSION SPROCKET WHEEL.

The Jeffrey Mfg. Company,
Columbus, Ohio, U. S. A.
NEW YORK CHICAGO DENVER,
PITTSBURG CHARLESTON, W. VA.



Bogardus Universal Eccentric Mill.

This mill has already attained the reputation of being the best mill in the world for general grinding. Will grind five times as much as any mill of same size. ECONOMICAL, DURABLE, SIMPLE. Any boy can attend same.

Catalogue and price list sent on application.

MANUFACTURED SOLELY BY

J. S. & G. F. SIMPSON,

28 Rodney Street, Brooklyn, N. Y.

JNO. C. MURPHY.

CAROLINE IRON WORKS,

Pyrites Burners Lump or Fine. Eggs, Nitre Pots Various Sizes. Acid Egg a Specialty.

Cor. Caroline and Lancaster Sts., Baltimore, Md.

Write for Prices.

The Mecklenburg Iron Works

will be glad to answer all correspondence leading to business from parties who need or expect to need machinery for handling Gold, Iron or Cotton, as they have been

manufacturing such machinery for thirty years, and are situated so as to give entire satisfaction.

Their address is

M. I. W.

CHARLOTTE, N. C.

The Air Compressor

best suited to the conditions under which it is to be used is the Economical Compressor.

We build Compressors in all capacities to meet every requirement.

WRITE FOR CATALOG.

Rand Drill Company

123
Broadway
New York

STEAM ROAD ROLLERS.



Kelly-Springfield Road Roller Co.
SPRINGFIELD, OHIO.

THE GRIFFIN MILL

IS NOW USED BY OVER 50 OF THE LARGEST Portland Cement Manufacturers in the world.

For the highest references and illustrated catalogue giving full description, address

BRADLEY PULVERIZER COMPANY,
92 State St., Boston, Mass.

PEACOCK'S IRON WORKS, SELMA, ALA.
 Manufacturers of PLAIN AND AUTOMATIC SELF-OILING
TRAM CAR WHEELS, AXLES, CAR IRONS and CARS
 OF ALL SIZES AND KINDS.
 COAL AND ORE MINING CARS OF EVERY KIND.

Davidson
Tubemills

Kominuter
New Coarse Grinder

Sixty Million
Barrels of Cement
Ground Annually by
SMIDTH MILLS.



Over
2000
in operation.

The COGSWELL MILL,

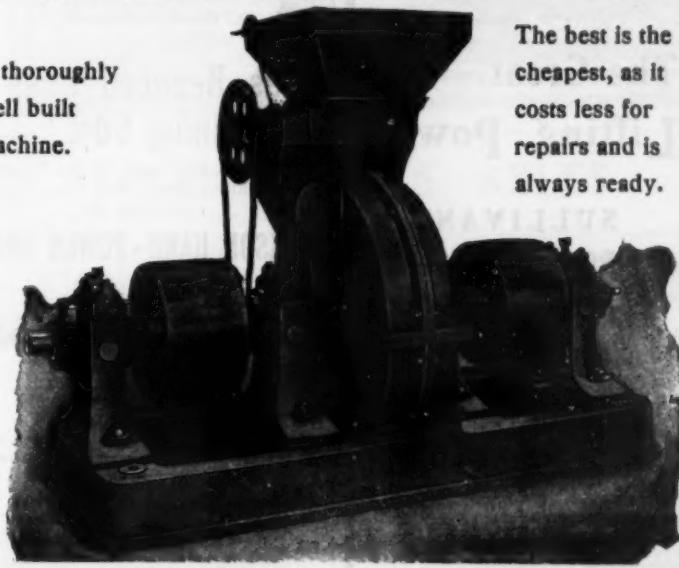
THE ORIGINAL AND STANDARD FOR GRINDING

Cotton Seed, Cotton Seed Hull, Oil Cake, Corn, Corn and Cob together, Corn and Oats together, Feed of all kinds, Resin, Spices, Alum, Borax, Cocoanut Shell, Drugs, Sugar, Starch Material (Carbon), etc., etc.

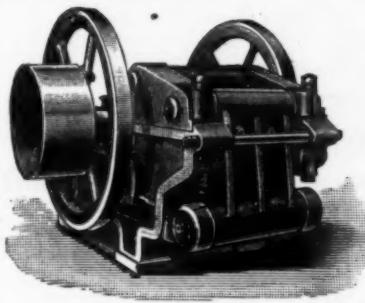
Capacity 3000 to 5000 pounds of feed meal (through No. 16 wire cloth) per hour.

A thoroughly
well built
machine.

The best is the
cheapest, as it
costs less for
repairs and is
always ready.



BUCHANAN'S ROCK CRUSHER



All Tensile Strains on Steel.
Strongest Crusher Made.
Widest Range of Adjustment.
Wearing Parts can be inverted.
Sizes from 7"x10" to 24"x36".
Capacities from 50 to 1000 tons
per day.

Geo. V. Cresson Co.
Philadelphia and New York.

Buchanan's Crushing Rolls and Magnetic Separators.
POWER TRANSMITTING MACHINERY.

G. G. BUCHANAN,
Consulting Engineer.

Department of Crushing and
Concentrating Machinery.

141 Liberty Street,
NEW YORK.

Austin Gyratory Crushers



Technically and mechanically without a fault.
Least liable to get out of repair and most economical in consumption of power.
Made in nine sizes.
In general use everywhere.
Write for the handsomest Crusher catalogue ever issued.
Also Dump Cars and Contractors' Machinery.

Austin Mfg. Co.
CHICAGO

BRANCH OFFICES NEW YORK PITTSBURG ATLANTA ST. LOUIS

THE A. & F. BROWN CO. Successors to M. C. COGSWELL 25 Dey St., NEW YORK.

FOOS SCIENTIFIC ATTRITION MILL.

Makes the Finest
EXPORT MEAL.

The result of twenty years' practical working and careful study of the needs of the business.

Special sizes for the cotton oil trade of extra heavy design. Ball bearings, safety springs, quick release, least trouble to open, easiest to change plates. Plates trammed in working position. The only mill with renewable feeding throat.

New Special Oil Cake Machinery Catalogue just out.



and
**THE
BEST
CAKE
Breaker**

THE FOOS MFG. CO., Springfield, O.

Teeth WITH PATENT

Simplicity
of Design
and
Manganese Steel
Make this
Two-Part Tooth
The First and Only
Success.

MANGANESE STEEL SHOES



SAVE
Time,
Labor,
Power,
Money.

Made in
Any Size,
Type or
Shape.

TAYLOR IRON & STEEL CO.
HIGH BRIDGE, N. J.

Sole
Manufacturers.

THOUSANDS OF
Millstones made of
EMERY
ARE IN USE.

PATENTED.
Send for Circular.

STURTEVANT MILL CO., 116 Clayton St., BOSTON, MASS.

Write for
Circular.



The Great Lifting Power

ON SULLIVAN ROCK DRILLS

makes them efficient in soft or broken ground as well as in the hardest rock. This and many other points of excellence are fully described in our new catalogue,

No. 51.

Air Compressors.
Channeling Machines.

**Sullivan
Machinery
Company**

135 Adams St.
CHICAGO, ILL.

Claremont, N. H.
New York.
Pittsburg.

Denver.
St. Louis.
El Paso, Tex.

**PERFORATED
METAL**
IN SHEET
**TIN, ZINC, COPPER,
BRASS AND STEEL**

EDWIN B. STIMPSON & SON
31 SPRUCE STREET
NEW YORK

ART METAL WORK

In Wire, Brass and Wrought Iron.
Bank and Office Railings
ELEVATOR ENCLOSURES



Metal Work for Interior and Exterior Decorations
Write for Catalogue. A SPECIALTY,
N. E. Cor. Fourth & Elm Sts., St. Louis, Mo.

NOT AN EXPERIMENT—In General Use
Throughout the World.

"Has Reduced Cost of Mining 50%"

Thus writes the Supt. of the Pittsburg
Gunnison Mine, Ohio City, Col.
regarding the

JACKSON HAND - POWER DRILL.



His letter and
many others will
be found in Cat-
alogue No. 13—
just issued.

Write for it.

H. D. CRIPPEN, Sole
Mfr.,
52 Broadway, N. Y.

WE PULVERIZE AND SEPARATE

Everything
without
Screens or Bolters.

NOTHING TO WEAR OUT.
ABSOLUTELY DUSTLESS.

Write for Catalogues.

**Raymond Bros.
Impact Pulverizer Co.**

143 Laflin St., CHICAGO.

THE FERNHOLTZ BRICK MACHINERY CO.

MANUFACTURERS OF
Dry Press Brick Machinery.
Dealers in Brick Yard Supplies.
Boyle Ave. & Old Manchester Road, St. Louis, Mo.

STRUCTURAL IRON WORK

For Immediate Delivery.

EYE BEAMS, from 3 in. to 20 in.
CHANNELS, from 1 1/4 in. to 15 in.
ANGLES, 1 in. to 6 in.
FLATS & BARS up to 20 in. wide.
ROOF TRUSSES, GIRDERS, COLUMNS,
and BRIDGES designed and built.

Bridge Railings a Specialty.

BELMONT IRON WORKS
PHILADELPHIA, PA.

PERFORATED METAL

FOR RICE MILLS. SUGAR WORKS.
PHOSPHATE MINES.
THE ROBT. AITCHISON PERFORATED METAL CO.
303 305 DEARBORN ST. CHICAGO ILL.

Complete Industrial Railways

EQUIPPED, PLANNED AND BUILT FOR

Factories, Plantations, Quarries, Mines, Contractors, Etc.
CARS OF EVERY DESCRIPTION
FOR EVERY PURPOSE.

Rails, Switches, Turntables, Etc., always in Stock.
MANUFACTURED BY

ARTHUR KOPPEL, (Dept. K.) 66-68 Broad St., NEW YORK.
Write for Catalogue No. 25.

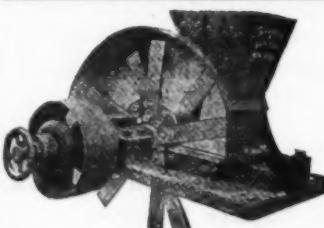
THE THEW AUTOMATIC SHOVEL COMPANY,

LORAIN, OHIO.

SHOOK & FLETCHER,
Gen'l Southern Agents, BIRMINGHAM, ALA.

STEAM SHOVELS FOR DOCKS AND RAILWAY TERMINALS.

Only one operator required.
Shovel works in complete circle.
Dipper moves horizontally.
Can be used as locomotive crane.



OUR DOUBLE DISC PULVERIZER.

Its Adaptation :

Pulverizing lumpy-acid phosphate and tailings,
Grinding steamed bones, tankage fish scrap,
oyster shells and other fertilizing materials.
This machine is an improvement of our single
disc, runs easy, requires but little power, has
few wearing parts, which are cheap and easy
to replace.

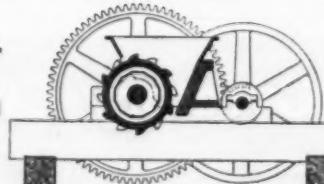
Walker & Elliott, Wilmington, Del.

Roll Crusher for Ore and Rock Phosphate.

CAPACITY:
5 to 50 tons per hour.

For Coarse and
Medium Fine
Product.

Write for prices.



Single or Double Roll
Crushers,
Ore Washers, Jigs,
Elevators,
Conveyors, &c
McLanahan-Stone
Machine Co.
HOLLIDAYSBURG, PA.

AIR COMPRESSORS

ALL STYLES—ALL SIZES

ROCK DRILLS

SIMPLEST AND MOST ECONOMICAL

McKERNAN DRILL CO.:
170 BROADWAY, NEW YORK.



LEAD PIPE OR SHEET LEAD

For Sulphuric Acid Chambers

Send your orders to The JAMES ROBERTSON MANUFACTURING CO., Baltimore, Md.

BRICK and CLAY-WORKING Machinery,

Hand or Power. We can supply anything needed in this line.
GEORGE CARNELL, 1819-1821 Germantown Avs. PHILADELPHIA, PA.
SEND FOR CATALOGUE.

ROAD BUILDING MACHINERY

and supplies of every description
ACME ROAD MACH'Y CO., FRANKFORT, N. Y., U. S. A.

AIR COMPRESSORS. FOR ALL PURPOSES

AMERICAN AIR COMPRESSOR WORKS,
26 CORTLANDT ST. NEW YORK.

RUBEROID

(Trade Mark Registered.)

Standard
for
Twelve
Years.

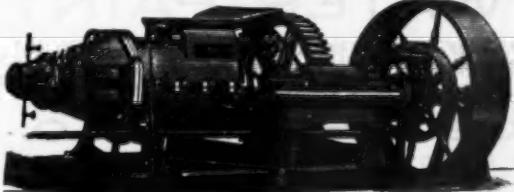


The
Pioneer
Elastic and
Water-Proof
Roofing.

ROOFING

MANUFACTURED EXCLUSIVELY BY
THE STANDARD PAINT COMPANY,
100 William St., New York.

'NEW SOUTH' BRICK MACHINERY.



Specially designed for working Southern clays. Three sizes with capacities from 60,000 per day. Hundreds in daily use. 12 years' experience.

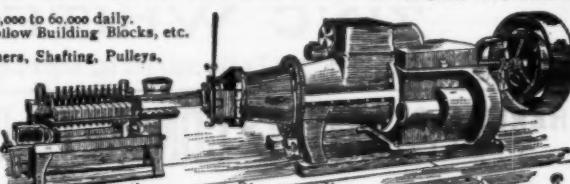
J. C. STEELE & SONS,
Statesville, N. C.

OHIO BRICK and TILE MACHINES

Six sizes. Capacity 50,000 to 60,000 daily.
Drain Tile, Hollow Building Blocks, etc.
Pug Mills, Clay Crushers, Shafting, Pulleys,
Belting, Castings.

Send for Catalogue.

E. M. FRESE & CO.,
Galion, Ohio, U.S.A.



Unequalled for BUILDING,
PAVING and FIRE BRICK.

THE NEW JERSEY WIRE CLOTH CO.

Manufactures

WIRE CLOTH FOR ALL PURPOSES.

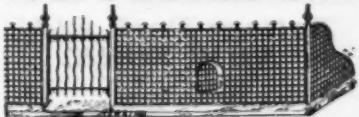
POULTRY NETTING, WOVEN WIRE FENCING.

ROEBLING'S WIRE is used in all of the products of this Company.

TRENTON, N. J.

For Catalogs, Samples and Information, address

J. E. BOLLES Iron and Wire Works.



Bank Railings, Elevator Enclosures and Cars, Grills,
Electric Brake Work, Fire Escapes, Iron Shutters,
Stable Fittings, Window Guards, etc.

Send for Catalogue No. 20 M.
Mention line of business.

Detroit, Mich.



Brass, Iron and Wire Work

FOR INTERIOR AND EXTERIOR FINISHES*

Bank Railings, Enclosures and Cars, Fences, Jail and
Asylum Guards, Stable Fixtures and General
Builders' Material. Plating.

PAROID ROOFING

IT LASTS.

F. W. Bird & Son.

Chicago, East Walpole Mass. New York.

CARS—WHEELS—AXLES

CARS—Coal Mining—Ore Cars—Contractors' Dump Cars—Lumber Trucks, etc.

WHEELS—(8" to 24" diameter) SELF-OILING Capped—Side Pockets—Plain Spoked—Plate.

AXLES—Machinery Steel—Square or Round—Any gauge.

NOTE: Our wheels will outlast any you have ever used. We use charcoal iron mixed on a scientific chemical basis. Our methods and wheels are ahead of the times. A sample will convince you. Wheels have deep chill and tough hub for longest wear. We do not **think**, we **know** we can please you.

PRICES—BLUE PRINTS—CUTS—ESTIMATE BLANKS
ON APPLICATION.

SANFORD-DAY IRON WORKS,
KNOXVILLE, TENN.

Mining Equipment, Drums, Sheaves, Rods, Pulleys, Cast Frogs and Turn-Outs, Grate Bars, Grates, etc.

HENRICK MFG. CO.

CARBONDALE, PA.



PERFORATED SHEET METALS

FOR SCREENING,

COAL, COKE, UR and ROCK

ALSO FOR

COTTON SEED OIL MILLS

AND

PHOSPHATE MINES.

Perforated Metals,



for all kinds of Screens—Brass, Iron, Steel, Tin,
Copper, Zinc—perforated as required. Perforated
Brass and Tin always in Stock.

PROMPT SHIPMENTS GUARANTEED.

A. J. BECKLEY CO.
Works—GARWOOD, N. J.

Chas. Mundt & Sons,

Manufacturers of Perforated Metals of every
description for all purposes * * * *

441 and 443 Pearl St., cor. William, NEW YORK.



Burrowes

Rustless SCREENS

Keep Out FLIES and MOSQUITOES
Made only to order. Guaranteed to fit. Best
in the World. Reasonable in price. Estimates
furnished. We pay freight.

The E. T. Burrowes Co.

Factories at Portland, Maine

Baltimore Office, 315 Equitable Bldg.

Burch & Hughes, Sales Agents



BUFFALO
WIRE
WORKS
(CO)

PROMERLY
SCHEELER'S SONS
WIRE CLOTH & WIRE GOODS
BUFFALO, N.Y.

WIRE RAILING

AND
ORNAMENTAL WIRE WORKS.

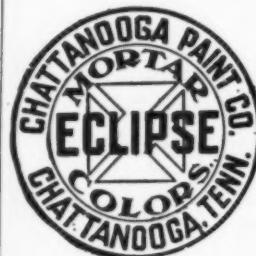
DUFUR & CO.

311 N HOWARD ST BALTIMORE
Wire Railing for Cemeteries, Lawns, Gardens,
Offices and Balconies; Window Guards, Tree
Guards, Wire Cloth, Sieves, Fenders, Cages, Sand
and Coal Screens, Iron Bedsteads, Chairs, etc.

If you appreciate a Good Roof =
USE
CAREY'S MAGNESIA FLEXIBLE CEMENT ROOFING :
FOR NEW OR OLD BUILDINGS.
Manufactured by
See our Covering
Advertisement on Page 26
The Philip Carey Mfg. Co. - - Lockland, Ohio.
ASK FOR OUR
CATALOGUE.
29 Branches

WEAR - PROOF
FIRE - PROOF
FUME - PROOF
ACID - PROOF
WHAT ?
FLINTKOTE ROOFING

The Flintkote Folks, Boston, Mass.



Red, Brown,
Buff and Black
**MORTAR
COLORS**



The Strongest and Most Economical in the Market.

One-half the amount of our Mortar Colors will do the work of any other and they are unsurpassed in Strength, Fineness, and Body.
Write for Samples and Quotations.

CHATTANOOGA PAINT CO.
CHATTANOOGA, TENN.

We manufacture a superior grade of
Red Oxide of Iron Paint for Railroad Cars, Bridges, Barns, Fences, Etc.



AQUALITE

THE LATEST AND BEST
COLD WATER PAINT

For Outside and Inside Work.
Fire-Proof and Weather-Proof.

All the advantages of others, many features exclusively its own.

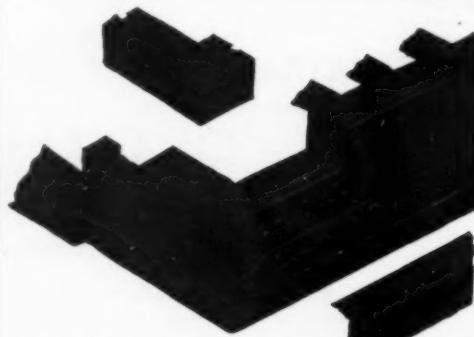
Columbia Refining Co.
32 BROADWAY, NEW YORK.

For PAINTING MILLS, FACTORIES AND WORKSHOPS
USE ONLY PAINTS BASED ON
ZINC WHITE.

A pamphlet, "The Paint Question," will tell you about it. Send TO US for one. The New Jersey Zinc Co., Empire Bldg., 11 Bdwy., New York.

HARMON S. PALMER'S METHOD OF CONCRETE BUILDING.

A Perfect System
of Construc-
tion—



By the use of Hollow Concrete Building Blocks, produced by hand labor with new scientifically and geometrically constructed machines, which pre-determine the stone and fitting the frame, do away with the steel square and effectually supersede all methods by their wonderful simplicity.

SAGENDORPH'S Patent Sectional METAL CEILINGS

The Penn Metal Ceiling and Roofing Co., Ltd.

14 Harcourt St. (Back Bay), BOSTON, MASS.

23d and Hamilton Sts. PHILADELPHIA, PA.

ROOFING WARREN CHEMICAL & MFG. CO.
16 Battery Place, New York.

Reward \$10—A reward of Ten Dollars given for first information of parties building with these blocks or using machines or presses that can make them, unless licensed by the Harmon S. Palmer Hollow Concrete Building Block Co., 1401 Binney Street, Washington, D. C.

AMERICAN TIN PLATE CO., *Battery Park Bldg.
NEW YORK.*

The sole owner of the "MF" brand and MF process of making terne plates (Roofing Tin).

The MF process of manufacturing roofing tin originated in South Wales two generations ago; from that time to the present the product of the MF process has been the most reliable, and hence the "most favored."

Recently the New Method by which terne plates are finished in a manner that gives further protection against corrosion has been combined with the MF process. The result of this combination is the U. S. Eagle N. M. Brand.

You can have the new art booklet, "A Fifty year Roof," free if you write to W. C. Crone-meyer, Agent, Carnegie Bldg., Pittsburg, Pa.



MAGNITE COLD WATER PAINT



A wonderful product for
Interior and Outside Work

Gives a firm, hard
finish and is
Weather and Wear
Proof

The
Whitest
White Known

Cheaper and better
than Oil Paint
Wont burn either - WRITE US

J. A. & W. Bird & Company
10 WELD STREET - BOSTON

Sold by
**John
Simmons
Co.**

110 Centre Street
New York

IRON AND BRASS
PIPE FITTINGS
FOR
STEAM, GAS,
AND WATER.



A HIGH GRADE
COATING
FOR
Refrigerating
AND
STEAM PIPES,
BOILER FRONTS,
ETC.
NOT AFFECTIONED
BY
HEAT OR COLD

METAL SHINGLE- ROOFING

Montross Shingle Co., Camden, N. J.
Best for house or barn. Fire-proof. Easily laid. Cheaper than slate or wood. Prices, catalogues and testimonials FREE.

NATIONAL
ROOFING & SUPPLY CO.

LOUISVILLE, KY.

Gravel Roofers.
Cement and Asphalt Pavers.
Building Papers.
Two and Three-Ply Ready Roofing.

Prepared Gravel and Slag Roofing

As prepared and applied by our specifications, will give you a perfect roof covering for all your buildings. Compare our roofing with others.

Samples and Catalog for the asking.
Armitage Mfg. Co., Richmond, Va.
SPECIALTIES.—2 and 3-ply Roofing, Insulating, Building and Sheathing Papers, Asphaltum, Pitch, Roof-Paints, etc.



Free Education In Roofing.

Send for illustrated booklet if you want to know all about all kinds.

Cortright Metal Roofing Co., PHILADELPHIA AND CHICAGO.

A FIREPROOF PAINT
ADAPTED FOR MILLS, FACTORIES, WAREHOUSES, ETC.
ALMOST AS DURABLE AS OIL PAINT AND AS CHEAP AS WHITEWASH

TRADE **PERMANITE** MARK
A PERMANENT COATING—WHITEST WHITE—COVERS BEST—LASTS LONGEST
SOLE MANUFACTURERS
M. EWING FOX & CO.
NEW YORK CITY

Southern Selling Agents
HOLDT & BULLINGTON,
ATLANTA, GA. RICHMOND, VA.

CHESAPEAKE IRON WORKS, Manufacturers of Ornamental Iron Work.

336 to 342 North Street, Baltimore, Md.

BEAMS,
CHANNELS,
ANGLES,
and
CAST IRON
COLUMNS.



Headquarters for { I BEAMS, GIRDERS, COLUMNS, SILLS,
WINDOW GUARDS, OFFICE RAILING,
IRON AND WIRE FENCES,

AND ALL KINDS OF
BUILDERS' IRON WORK
SEND FOR CATALOGUE. PROMPT SERVICE. LOW PRICES.
EUREKA SUPPLY CO., CHATTANOOGA, TENN. 8th and Pine Streets.

RAW HIDE
WATER-PROOF
PAPER.



Portable Asphalt Gravel Roofing

Is not perfect—nothing is—but it makes the best roof we know of for all kinds of business buildings, under all kinds of conditions, in all kinds of climates. Would you like samples and particulars?

Stowell Mfg. Co.

Jersey City, N. J.

114-134 Culver Ave.

TOUGH AS LEATHER.
WATER PROOF.
AIR TIGHT.
ODORLESS.

MAKES a neat, durable and permanent Covering as a Roofing or Siding at a cost not greatly in excess of ordinary roofing or siding.

C. S. GARRETT & SON CO.

Paper Makers,

20 & 22 S. Marshall St.,
PHILADELPHIA.

American Roofing Company,
MOBILE, ALA.

GRAVEL ROOFS.

Star White Wash and Painting Machines,

ALL KINDS AND ALL SIZES.
Write for Catalogue.

THE STAR BRASS WORKS,
162-164 E. Lake Street,
CHICAGO.
"Bink's Fire Proof Paints"

Send us the number of square feet contained in your roof and we will name you price on enough **Arrow Brand Asphalt Ready Roofing** to cover it, delivered at your nearest railway station.

ASPHALT READY ROOFING CO.
136 Water St., New York.

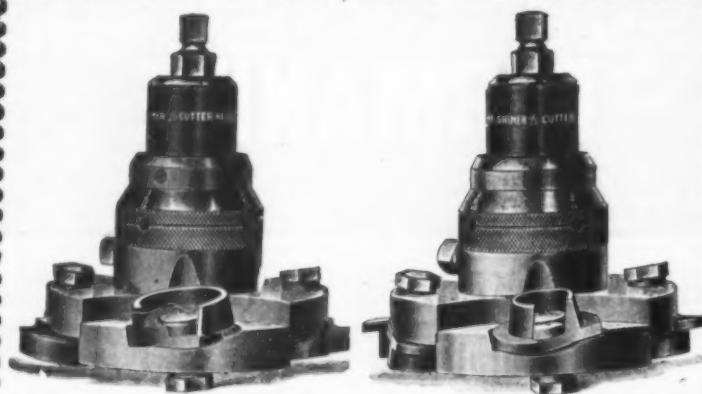


Metal Skylights

built expressly to overcome their many drawbacks. Our fully illustrated Catalogue shows clearly a faultless construction. Shall we mail you a copy?—it's free, of course.

E. VAN NOORDEN CO.
550 Massachusetts Ave.
BOSTON, MASS.

MANUFACTURERS' RECORD.



The Shimer Cutter Head IS DESIGNED FOR A PURPOSE

Which has for its object the direct saving of labor and material. Its construction agrees with the special class of work it is to perform. It is first made to suit the machine—it is next made to suit the work. Every detail is carefully formed to give a free cut—to hold a uniform shape—to be durable. These features establish a permanent make-ready, which demonstrates that this "Best of All Cutter Heads" makes a safe and profitable investment.

It works single tongue and groove Flooring, Ceiling, Siding, Ship-Lap and Jointing.

It works Door and Sash Mouldings and Coping to match.

It works special shapes of Mould, and is particularly useful in cutting patterns wherein square off-sets occur.

The Shimer Cutter Head is made to measurements, and sent on trial 30 days to any responsible lumber manufacturer, and is returnable if not satisfactory. Address

Samuel J. Shimer & Sons
MILTON, PENN'A.

Wire Rope. Insulated Wires.

Send for Handsomely Illustrated Catalogs.

Hazard Mfg. Co.,
Wilkesbarre, Pa.

NEW YORK: 50 Dey Street. CHICAGO: H. Channon Co., 24 Market St.



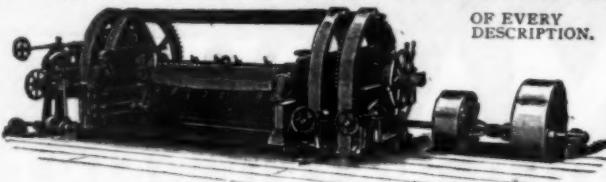
Broderick & Bascom Rope Co.

Manufacturers of
WIRES ROPE
Of Every Description for all Purposes.

56 Horses Used in
Hauling this Cable.



We are Positively Headquarters for Strictly High Grade VENEER CUTTING MACHINERY



OF EVERY DESCRIPTION.
YOU WANT THE BEST. WE HAVE IT.
THE COE MFG. CO., Painesville, Ohio, U. S. A.
ESTABLISHED 1852.

WIRE ROPE

All kinds that others make, and some that others do not. For instance,

THE PATENT LOCKED-WIRE ROPE



Note the smooth surface, and how the exterior wires interlock, resulting in long life, and no displacement of wires. Nothing equal to it as a track cable for Cable Hoist Conveyors. Also, Iron and Steel Wire of all kinds.

Manufactured by **THE TRENTON IRON CO.**

Trenton, N.J.

NEW YORK OFFICE—Cooper, Hewitt & Co., 17 Burling Slip. CHICAGO OFFICE—1114 Monadnock Bldg.
PHILADELPHIA OFFICE—614 Betz Bldg.

Plow Handle MACHINERY.

Write for Circular and Prices.
B. M. ROOT, YORK, PA.

Wood- Workers' Bench Trimmers



Saves time—

A Single motion cuts a Saratoga chip or a thick one with perfect accuracy. Pattern-Makers, Picture Frame and Cabinet Makers can't afford to be without one on each work bench.

Only \$15.00 Each, while they last. Cash with order.

Carlton Machinery Supply Co.
Lacock and Sandusky Sts., ALLEGHENY, PA.

"WINNERS!"

Standard Ball-Bearing
Philadelphia Casters.



Samples and Catalogue Free.
Standard Caster & Wheel Co.
318-328 E. 23d St. NEW YORK.

Subscribe to the Manufacturers' Record.
Price \$1 a year, or six months for \$2.

Main Office,
805 to 809 N. Main Street,
St. Louis, Mo.

Branch Office,
33 South Street,
New York.



The COTTON

Wood working machinery in single tools or complete outfits. Machinery in use all over the South, the American continent, and throughout the world. Highest honors wherever exhibited; "Grand Prix" and Decoration Legion of Honor, Paris, 1900. New catalogue free. Send for new Sander book and pamphlet on the care of band saws.

J. A. Fay & Egan Co.



WOOD KING.

No. 104 New Band Resawing Machine.
(Patented February 27th, 1900.)

We give a special invitation to all box makers to investigate this new machine. It has just been built and is designed to answer the demand now out for a machine capable of doing a large amount of resawing in cottonwood, and one which will do it in an accurate way. It has all the latest advantages our successful experience with this class of machinery could suggest, and they bespeak its success wherever used.

270-290 W. Front Street,
CINCINNATI, OHIO.

ATKINS
ALWAYS
AHEAD.

Are You Not Aware

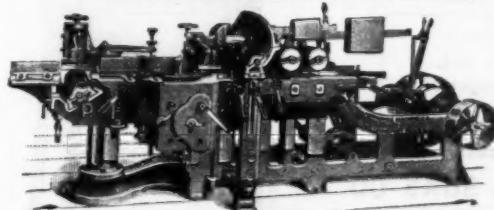
That the Best is the Cheapest?
Atkins Saws will demonstrate this fact to you every day in the year.
It's up to you. Drop us a line.

E. C. ATKINS & CO.
Indianapolis, Ind.

BRANCHES:

Memphis, Tenn. Minneapolis, Minn.
Atlanta, Ga. Portland, Ore.
No. 64 Reade St., New York City.

HERMANCE 1903 Four Side Moulder. WOOD WORKING MACHINERY UP-TO-DATE.



HERMANCE MACHINE CO.,

Williamsport, Pa.

Wider belts, larger journals, stronger feed, side heads plane as smoothly as top heads, sectional independent pressure bars.

Send for descriptive circular with full details, and let us tell you about it.

Panel Raisers, Saw Benches, Surfacing, Gang Rip Saw, Self-Feed Rip Saws, Hand Planers, and other new and up-to-date machines.

Wood-Working
Machinery
FOR ALL PURPOSES.



H. B. Smith Mach. Co.
Smithville, N. J.

BRANCHES:
NEW YORK
AND
CHICAGO.

HENCH & DROMGOLD'S



SAWMILL AND ENGINES

A wonderful improvement in Friction Feed and Gig-Back. Back motion of carriage 3 times as fast as any other in the market. Friction Clutch Feed, causing all the feed gearing to stand still while backing; great saving in power and wear. Catalogue and prices free. Also Spring Harrows, Cultivators, Corn Planters, Shellers, etc. Mention this paper.

The Hench & Dromgold Co., Mrs. YORK, PA.

BEACH'S Sawing Machinery.

H. W. BEACH, MONTROSE, PA.

DE LOACH MILL MFG. CO.

Manufacturers of

High-Grade Mill Machinery
ATLANTA, GA., and NEW YORK, N. Y.

LANE'S LATEST GANG EDGER 14 INCH SAW



Highest Award, Gold Medal, at the S. C., Interstate & W. I. Exposition.

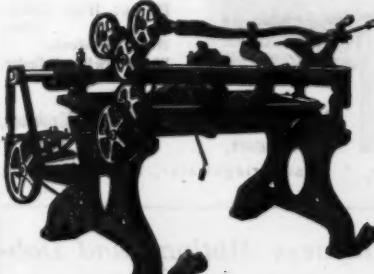
PURE EXCELLENCE AT THE PRICE.

\$137.45 with 2 saws, 1 movable; \$145.74 with 3 saws, 2 movable. Terms Cash. F. O. B. Montpelier, Vt. Will edge straight. Front roll raised and feed stopped from operator's position. Saws quickly changed. Front and rear tables easily removed for transportation.

We also manufacture Saw Mills, Set Works, Dogging Devices, etc., Water Wheels, Log Jackers, Canters and Niggers, Drag, Swing and Friction Feed Cutting-Off Saws, Live and Dead Rolls, Edgers, Trimmers, Cutting Off Tables, Lathe, Shingle and Clapboard Machines, Planers and Matchers, Transmission Machinery and the Anderson Patent Traveling Cranes.

Circulars and Prices on Application.

Lane Manufacturing Company,
MONTPELIER, VERMONT, U. S. A.



OBER MFG. CO.

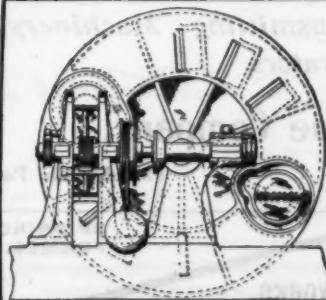
CHAGRIN FALLS, OHIO, U. S. A.

Manufacturers of

PATENT HANDLE,
SPOKE AND VARIETY TURNING LATHE,
SANDERS, ETC.

Lathes for Turning Axe, Adze, Pick, Sledge, Hammer, Hatchet, Auger, File, Knife, Chisel, Fork, Hoe, Rake, Broom, Ice Hook and Mop Handles, Pike Poles, Whiffletries, Yokes, Spokes, Porch Spindles, Table Legs, Tent Stakes, Ball Bats, Mallets, Gun Stocks, etc.

Boring Machines, Automatic Sanders, Chucking Machines, Shapers.



The American Excelsior and Machine Company

is
the manufacturer of an improved
Rotary Machine for Producing
Excelsior. It is unique.

Baltimore, Maryland.



FARQUHAR Portable Saw Mills

with Engines and Boilers Complete.
Made in seven sizes, friction feed, cable
lightning gig, patent chain set works and
improved dogs. **AJAX CENTER
CRANK ENGINES** are constructed
with especial reference to the peculiar
work required of them. This com-
bination of engine and mill
makes the best sawmill
outfit on earth.

A. Farquhar Co., Ltd.
York, Pa.

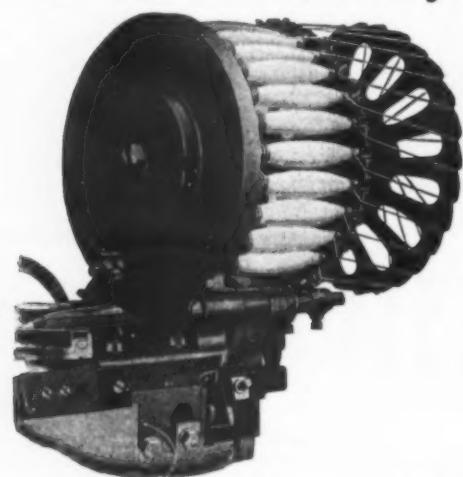
For information about the

KNITTING BUSINESS

Write McMICHAEL & WILDMAN MFG. CO., NORRISTOWN, PENNA.

A NEW HOPPER

For the New Century.



The Hopper makes the Loom. Note the Size and the Simplicity.

THE DRAPER CO.,

Hopedale, Mass.



CARVER COTTON GIN CO.

Linter

For 1903.
Patent Automatic Feeder.
Adjustable Seed Board.
Adjustable Friction Drive for Float.
New Method Drive.
Patent Iron Cylinder (der.).
Whole Saw Wood,
Whole Saw Iron Cylinder.

WE ALSO MAKE
Cotton Seed Hullers, Saw Filling Machines,
Gummers, Cotton Gins.
East Bridgewater, Mass., U. S. A.

The Latest
and
Best.

Looms, Harness Motions and Dobbies, Beaming, Spooling, Winding, Dyeing and Sizing Machinery, Power Transmitting Machinery, Freight Elevators.

Fairmount Machine Company,

Twenty-Second and Wood Streets,

Philadelphia, Pa.

CARDS.
DRAWING.

SPINNING
FRAMES.

MASON
MACHINE WORKS,
COTTON MACHINERY,
TAUNTON,
MASS.

COMBERS.
LAP MACHINES.

MULES.
LOOMS.

KILBURN-LINCOLN & CO., FALL RIVER, MASS
LOOMS FOR PLAIN AND FANCY WEAVING.

The Kilburn-Lincoln High-Speed Loom is the result of over fifty years' experience in Loom Building.

LATCH NEEDLES

For All Makes of Machines.
Mayo Knitting Machine & Needle Co., Franklin Falls, N. H.

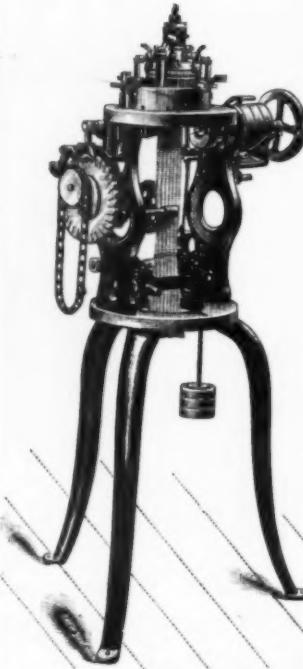
SCOTT & WILLIAMS,

Builders of

Rib Knitting Machinery

FOR

Underwear
and Hosiery



The machine for making Hose Legs is made both double and single feed for Hose Legs, Half-Hose Tops and Cuffs for Underwear, with welt and slack course.

The single feed machine can be fitted with knee and angle splicing, also lace attachment, with or without welt and slack course.

The Sleeve Machine is well adapted for making shaped ribbed sleeves, with or without welt and slack course, and automatically changes from tuck to plain stitch, forming a contracted cuff portion.

These machines are equipped with solid forged steel cylinders, specially hardened.

Special Machinery for Glove Toques, Bicycle and Golf Stockings, etc.

The illustration shows our Improved High Speed Sleever and Ribber, single or double feed, for making Shaped Ribbed Sleeves, Ribbed Hose Legs, etc.

We Build Looper, Underwear and other Machinery for Knitting Mills.

As well as a Complete Line of Full Automatic and $\frac{3}{4}$ Automatic Seamless Hosiery Machinery.

Full particulars, samples and special catalogues on application.

2079 E. CUMBERLAND ST., PHILADELPHIA, PA., U. S. A.

Steam Jacket Kettles

Guaranteed to stand 150 pounds cold-water test.
Equal, if not superior, to any in the market.

Established 1841.

E. B. BADGER & SONS CO.

COPPERSMITHS,
63-69 Pitt Street, BOSTON, MASS.

Send for Catalogue.



Cottonseed Oil Machinery.

Tobacco Cutting Machinery.

Brass Goods

FOR ENGINE BUILDERS, STEAM, WATER AND GAS FITTERS.

Write for Catalogue.

BUCKEYE IRON & BRASS WORKS,

DAYTON, OHIO, U. S. A.

A. H. WASHBURN,

SOUTHERN AGENT

SACO & PETTEE MACHINE SHOPS

Everything needed for the Complete Equipment of COTTON MILLS to Manufacture
Yarns and Woven Fabrics of all Kinds,

CHARLOTTE, NORTH CAROLINA.

Loop and Double Knot Harness

We recommend our Double Knot.
It costs no more than the Loop.

Our special point in Reeds is our Oval Dent. It is a decided improvement over the flat dent, and we furnish at same price.

Send trial order.

American Supply Co.,

Providence, R. I.

Cottonseed Oil Machinery.

(Not in any Combination or Trust.)

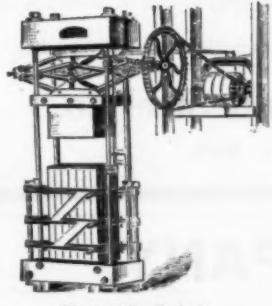
Modern Ginning Systems.

Write for Catalogue.

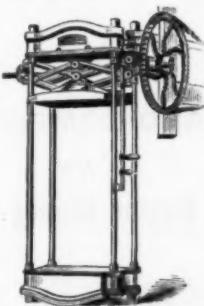
E. Van Winkle Gin & Machine Works,

Atlanta, Georgia, U. S. A.

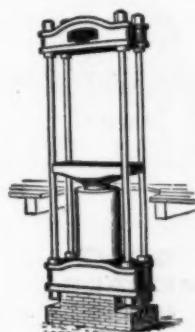
Local Oil Mills and Ginneries Combined.



Knuckle-Joint
Cloth-Baling Yarn and Press.



Knuckle-Joint
Cloth-Baling and Finishing Press.



Hydraulic
Cloth-Baling and Finishing Press.

Manufactured by

G. H. BUSHNELL PRESS CO.

Thompsonville, Conn., U. S. A.

STUART W. CRAMER, Charlotte, N. C.
SOUTHERN AGENT.

Sand Papers

In Reams and Rolls.



Flint Paper,
Garnet Paper,
Emery Paper and
Emery Cloth.

HAIR FELTING

for covering Boilers, Steam and Water Pipe, and Lining Refrigerators.

BAEDER, ADAMSON & CO.

GLUE, CURLED HAIR and SAND PAPER.

730 Market St., Philadelphia.
67 Beekman St., New York.
143 Milk St., Boston.
182 Lake Street, Chicago.

SHERWOOD BOBBIN & MFG. CO.
Greensboro, N. C.

MANUFACTURERS OF

Speeder, Slubber, Intermediate and Twister Bobbins, Skewers, Spools, Spool Skewers and Clearer Rolls.

NYE & TREDICK CO.
Circular Rib Knitting Machinery

For Underwear, Combination Suits, etc., Men's Underwear, Sweaters and Hosiery.
606 Arch Street, PHILADELPHIA, PA.

SECOND-HAND HYDRAULIC MACHINERY
FOR
Cotton Seed Oil Mills.

Address "AMERICAN,"
1505 Manhattan Bldg., Chicago

SAVOGRAN
INDIA ALKALI WORKS, Boston.

Cleans Wool,
Mill Floors,
Anything.

THE O. A. TOMPKINS COMPANY

COTTON MILLS

LOWELL CRAYONS

MADE IN
DIFFERENT
COLORS.

LOWELL CRAYON COMPANY,

Lowell, Mass.

Used by all the first-class textile mills, because they are worth their cost. . . . The constituents are such that produce desirable results. Do not leave stains. . . .

Cotton-Seed Oil Mills.

THE CARDWELL MACHINE COMPANY,

Richmond, Va.

O. A. ROBBINS,
ENGINEER,

Machinery & Equipment for Cotton Mills.

OFFICE: Cor. 4th and Tryon Sts., CHARLOTTE, N. C.



YOU WANT
THAT TONAWANDA
MERRY-GO-ROUND
BIGGEST MONEY MAKER
ON EARTH.

HERSCHELL, SPILLMAN & CO.
162-168 SWEENEY STREET,
North Tonawanda, NEW YORK.

For any information about

CAROUSELS and **MERRY - GO - ROUNDS**

as to Prices, Sizes and Terms, Address

P. C. McINTIRE & CO., Charlotte, N. C.

Agents for following States: Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Texas, Kentucky and Tennessee.

AMERICAN TYPE FOUNDERS CO.

ORIGINATORS OF

TYPE STYLES

ELECTROTYPE

BEST EQUIPPED PLANT IN THE SOUTH

NICKELTYPES

FOR HALF TONES. SOMETHING NEW. BIG

SAVING IN THE PRESSWORK. MAK-

ING READY MADE EASY

QUADS

WRITE FOR SPECIAL PRICES AND DISCOUNTS

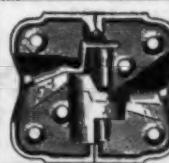
COR. WATER AND FREDERICK STS.

BALTIMORE, MD.

CHAS. S. CONNER, MANAGER.

Cabinet and
Builders'
Hardware.

Specialties in Iron.
Wrightsville Hardware Co.
Wrightsville, Pa.



ENGINES, BOILERS, SAW MILLS,

GINNING MACHINERY

And Kindred Lines Generally.

W. H. GIBBES & CO.
COLUMBIA, S. C.

The "Johnson" Sugar Filter Press
Specially designed for Plantation Sugar Houses and Sugar Refineries.

Reduces the loss from fermentation and inversion to a minimum.
Insures an increased yield of crystallizable sugar.

We Build Special Presses for Cotton Seed Oil, Sugar House, Abattoir and all other Special Work.

JOHN JOHNSON & CO.
FRANKLIN SQUARE,
NEW YORK, U. S. A.



Cotton Oil & Fibre Co.

Southern Oils and Works:
Norfolk, Va.

Land Title Bldg.:
Philadelphia, Pa.

Producers of

Crude and Refined Cotton Seed Oil,
Cotton Seed Cake, Hulls, Mixed Hulls,
Linters, Etc.

Prime Cotton Seed Meal "Cofco" Brand.

Samples Free On Request. Net 100 Lbs. Fully Decorticated.

Guaranteed Analysis:

	Not Less Than	8.50	Per Cent.
Ammonia.....	10	10	10
Nitrogen.....	10	10	7
Protein.....	10	10	43
Crude Oil and Fat.....	10	10	9 to 10

SOUTHERN COTTON OIL COMPANY,

HEAD OFFICE: 11 BROADWAY, NEW YORK.

Mills and Refineries in Georgia, North and South Carolina, Alabama, Tennessee, Arkansas, Louisiana and Texas.

**COTTON MANUFACTURERS OF ALL
SEED PRODUCTS.**

**Oil Cake and Meal, Hulls,
Linters, Soap Stock
and Soap.**

Refiners of

COTTON OIL,

All Grades



Manufacturers of
ARD COMPOUND
AND
esson Cooking Oil.

Refineries Located at—Savannah, Augusta and Atlanta, Ga.; Charleston, S. C.; Charlotte, N. C.; Montgomery, Ala.; Houston, Tex.; New Orleans, La.; Memphis, Tenn., and Little Rock, Ark.



GOLD MEDALS
AWARDED

CHICAGO 1893.
PARIS 1900.



The American
MANUFACTURERS AND REFINERS
AMERICAN COTTON CO.

The image is a historical advertisement for cottonseed products. It features a large, bold title "The American Cotton Oil Manufacturers and Refiners." in the upper left. Below it, the words "OLD MEDALS AWARDED." are visible. The main title is surrounded by several circular company logos. One logo on the left reads "THE AMERICAN COTTON OIL CO. NEW YORK." Another logo below it has a central figure and the text "MINER'S OIL CANDLES". To the right, there are logos for "THE UNION OIL CO. BUTTER OIL NEW ORLEANS, LA.", "Union Oil Co. PROVIDENCE, RI.", "PURE SAAD OIL", and "THE AMERICAN COTTON OIL CO. COKING OIL NEW YORK". A prominent logo in the center-right features a large "LXL" monogram. The bottom right corner contains the text "COTTONSEED PRODUCTS." above "Oil, Cake, Meal, Linters, Ashes, Hulls." The overall design is ornate and reflects the industrial and commercial nature of early 20th-century advertising.

The logo features a stylized sunburst or starburst shape on the left, composed of radiating lines ending in small circles. To its right, the words "AMERICAN COTTON OIL CO." are written in a curved, bold, serif font along the top edge of a crescent-shaped border. Below this, the word "MOON" is prominently displayed in large, bold, serif capital letters. At the bottom of the crescent, the words "NEW YORK" are written in a smaller, bold, serif font.

**GOLD
MEDALS
AWARDED
BUFFALO 1901.
CHARLESTON 1902.**



INTERNATIONAL CREOSOTING AND CONSTRUCTION COMPANY, WOOD PRESERVING.

Send for Pamphlet.

Address all communications to
Office, Galveston, Texas.WORKS: BEAUMONT, TEXAS.
TEXARKANA, TEXAS.Capacity 18,000,000 feet B. M. per Annum.
Capacity 57,000,000 feet B. M. per Annum.CAPACITIES BASED ON
24-HOUR TREATMENT.Timber treated with any of the best
processes now in use.

For \$12.50 Cash



YOU

can purchase a full size

Hygienic Perfection
Mattress

GUARANTEED to be better than a \$50 Hair Mattress in COMFORT, CLEANLINESS and DURABILITY. If not satisfied after sixty nights trial, your MONEY will be cheerfully REFUNDED.

For sale by all first-class dealers.

Manufactured by

Perfection Mattress Co.

Birmingham, Ala., (Home Office) 102-10 First Ave.
Baltimore, Md., 305-09 E. Falls Ave.
St. Louis, Mo., 321 N. Main St.**Copper Works.**McMILLAN BROS.
Fayetteville,
N. C.
Savannah, Ga.
Jacksonville,
Fla.
McMILLAN BROS.
COMPANY,
Mobile, Ala.
Mfg'r's ofTurpentine Stills,
And General Metal Workers.

West Pascagoula

Creosoting Works.

West Pascagoula, Miss., U. S. A.

Situated on Pascagoula Bay and on the line of the Louisville & Nashville Railroad. Established 1875. Orders for creosoted piles, telegraph poles, cross-arms, electric conduits, paving blocks, sawed ties and timber, promptly executed. Cylinders 120 feet long. Capacity one million feet per month. A. B. C. code used. Cable address Pierre, West Pascagoula, Miss. Address,

E. H. BOWSER, Supt

Patterns in Wood and Metal.

**THE
Richmond Pattern Works**
305, 307, 309, 311, 313 North 18th St.
RICHMOND, VA., U. S. A.
Ornamental and Machinery Patterns
of all kinds; Marine Patterns
a Specialty.
Practical Construction Guaranteed.
IRON AND BRASS CASTINGS
OF EVERY DESCRIPTION.

**Bank and
Office
Fixtures.**

The most complete assortment in the country.

Regular goods always in stock; anything special made to order.

Up-to-date plant equipped in the most modern manner with latest improved machinery, operated by experienced mechanics and supported by a large capital.

The result is but natural: You get what you want, and at a price that none can beat and only few can equal.

"Buy from the Makers."

M. L. HIMMEL & SON,
Baltimore, Md.

Write for Catalogue No. 9.

**International
Mercantile Agency,**
346 Broadway,
NEW YORK CITY.

A rating book which rates all merchants of the United States and Canada; no blank ratings. Estimates of capital are made within a narrower range than ever before attempted; HABIT OF PAYMENT is indicated in addition to, though absolutely independent of, the "capital, credit or standing rating." This is a vital feature heretofore uncovered by any agency book. We rate from "nothing" to ten millions and over. SPECIAL REPORTS promptly furnished.

BALTIMORE OFFICES,
309-319 The Calvert.**ADVERTISEMENTS**

M. E. GREENE,
269 Dearborn Street,
CHICAGO, ILL.
Written and
Placed.
Booklets, Circ-
lars, Prospectuses,
WRITE FOR ESTIMATES.

PRICE & HEALD,
Manufacturers' Record Building,
BALTIMORE, MD.

Specialty—Maple Flooring for Cotton Mills.

Manufacturers and Dealers in Hardwoods, Poplar, Pine, Red Gum, etc.

The Cushing Company

SUCCESSOR TO

J. W. BOND CO.
Established 1848AND CUSHING & CO.
Established 1810

IS PREPARED TO FURNISH

Office, Bank and School Supplies OF EVERY
DESCRIPTIONWe can supply you with Desks, Furniture, Blank Books, Stationery,
Printing, Lithographing, Engraving and everything you use for office work.

THE LARGEST STOCK OF BOOKS IN THE SOUTH

THE CUSHING COMPANY

14 W. Baltimore St.

Baltimore, Md.

CAMERON STEAM PUMPS



We like to answer inquiries.
See our 112 page Catalogue.

For Boiler Feeding, Mines, Refineries, Breweries, Tanneries, Irrigating, Fire Purposes, Railroads and Filling Tanks.

CAMERON STEAM PUMPS,

Having no outside valve gear they are the most durable, reliable and effective pumps on the market.

A. S. CAMERON STEAM PUMP WORKS,
Foot of East 23d Street, NEW YORK.

ALBERGER COOLING TOWERS

IMPROVED CONDENSING APPARATUS VACUUM PUMPING MACHINERY

Send for Illustrated Catalogue.

ALBERGER CONDENSER COMPANY, 95 Liberty St., NEW YORK

DENNEY IMPROVED Rider & Ericsson Hot Air Pumps.



**Reliable, Economical,
Safe and Noiseless.**

Always ready for service. Can be operated by any one. Use any kind of fuel. Built for years by

**AMERICAN MACHINE CO.,
WILMINGTON, DEL.**

Agents—The Tribune Hardware Specialty Co., 105 W. Fayette St., Baltimore, Md.
Send for Catalogue R.

LET US HAVE YOUR SPECIFICATIONS
OF SINGLE DUPLEX & ROTATIVE
STEAM AND POWER

PUMPS
THE JOHN H. MCGOWAN CO.
CINCINNATI
SIMPLE COMPOUND & COMPOUND CONDENSING
ELEVATOR & WATER WORKS
PUMPING ENGINES

HENRY R. WORTHINGTON
PUMPING MACHINERY.

Marine Air and Feed Pumps a Specialty.
Boston Chicago Philadelphia St. Louis Butte
WATER METERS Cleveland Pittsburgh Atlanta San Francisco
116 Liberty St., New York, New Orleans

S. MORGAN SMITH CO., York, Pa.
Hydraulic Engineers.

Manufacturers of
MCCORMICK TURBINES.

See illustrated ad. in last and next issues.



THE
COOK WELL
CO.

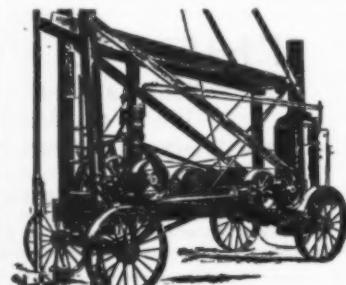
ST. LOUIS, MO.
U. S. A.

Cook's System of
Wells
for Cities,
Towns,
Villages,
Railroads,
Ice Plants,
Breweries and
Manufacturers.

Cook's
Patent Brass Tube
Well Strainer.

Cook's
Deep Well Pumping
Engines.

Estimates furnished
upon application.
Write for Catalogue
and Prices.



WE ARE MANUFACTURERS OF
Portable Drilling Machinery,

Run by Steam, Gasoline or Horse-power;
for Water, Oil or Gas Wells, any depth.
Forty-two different styles. Send for
Catalog "A."

KELLY & TANEYHILL CO.
68 Chestnut Street, WATERLOO, IOWA.

PERRY ANDREWS & BRO.

ARTESIAN
AND
OIL WELL CONTRACTORS
AND
DRILLERS.

Have had years of experience
in Oil Well Drilling.

Porter Place,
ATLANTA, GA.



The Question of Water.

Water supplies for small cities, mining operations, power plants, railroad tanks, irrigating purposes, factories, etc., easily handled by our NIAGARA HYDRAULIC RAM. Various sizes will pump from 1000 to 250,000 gallons a day. A development of old fashioned ram which will work anywhere that running water is to be found. No expense for fuel or operation. Simple, durable, needs no attention. The best pump known.

Agents wanted and correspondence invited. Send for illustrated catalogue free.

Niagara Hydraulic Engine Co., Box 78, Chester, Pa.



Municipal Plant.

FLINT & WALLING MFG. CO., KENDALVILLE, IND.
516 Oak Street,
EASTERN OFFICE—26 Wall St., New York, N. Y.



Ornamental Outfit

Water Supply Outfits

For Manufacturing Plants, Railroads, Small
Villages and Private Residences.

Galvanized Steel
"STAR" COLUMN TOWERS,
Any Height.

Galvanized Steel, Pine
or Cypress
TANKS,
Any Capacity.

Star Wind Mills,
Galvanized Steel or Wood, adapted
for farm, residences, power or
irrigating purposes.

"HOOSIER" and "FAST MAIL"
IRON PUMPS.

Write for Catalogue.

DESIGNS AND PRICES FURNISHED.

**THE GRANGE IRON
PIPE & FOUNDRY CO.**
LYNCHBURG VA.

FIRE HYDRANTS.
STOP VALVES.
GENERAL
FOUNDRY WORK.

Star Drilling Machine Co.
Manufacturers of

PORTABLE
DRILLING
MACHINES

For Water, Oil
or Gas Wells.

Send for Catalogue

"D."

104 Fulton St.,
New York.

Factory at
AKRON, OHIO.
Cable, "Drof."
Tel., 2440 B John.

Any depth from 10
to 2000 feet, in any
part of the country.

Soundings made for Foundations.

Test Boring for Water.

Write for references and particulars.
ISAAC H. FORD, 104 Fulton St., New York.

20 Years' Experience.

**DEEP WELL
PUMPS,**

Steam and Power.

Double and single acting
Pumps of large capacity, for
city and village water-works,
mines and factories.

DOWNEY PUMP CO., Downieville, Pa.

Gritty Water

Pumped with ease. A

**PULSOMETER
STEAM PUMP**

will even handle thick
mud without the least
injury to its working
parts.

Pulsometer Steam Pump Co.
125 Greenwich St., NEW YORK.

Water Supply

For Towns, Cities, Mills and
Industries of every kind.
Well Systems and Air Lift
Plants Installed Complete.

The BACON AIR LIFT CO.

22 William St., NEW YORK

Sole Owners and Manufacturers of the
Simple and Compound BACON
AIR LIFT SYSTEMS

Size
1 to
Inch

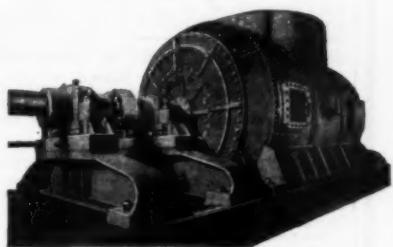
Size
1 to
Inch

Eastern



One unit of two pairs of 21" cylinder gate Victor Turbines on horizontal shaft in steel flume, the flume sheet being removed to show the center discharge cases, etc. For further particulars, address

THE STILWELL-BIERCE & SMITH-VAILE CO.,



WRITE DEPT. "A-2" FOR CATALOG.

SAMSON TURBINE

It has always been our policy to put on the market only a turbine that is UP-TO-DATE in every respect and built of lasting material. For this reason we have been the LEADERS in this line of work during the past FORTY-ONE YEARS.

THE JAMES LEFFEL & CO., Springfield, Ohio, U. S. A.



TURBINES

Adapted to COTTON MILLS and POWER PLANTS
On Horizontal or Vertical Shafts.

RISDON CYLINDER AND REGISTER GATE TURBINES.

Test in Hoyle Flume: { Full Gate $\frac{3}{8}$ $\frac{1}{2}$ $\frac{3}{4}$ $\frac{5}{8}$ Average $\frac{1}{2}$

Test in

Hoyle Flume: { .8694 .8472 .8614 .7601 .8196

ALCOTT'S HIGH-DUTY TURBINE,

High Efficiency, Easy Working Gate. Simple, Durable.

TAYLOR SLEEVE GATE TURBINE,

Largest Power ever obtained from a wheel of same dimensions.

RISDON-ALCOTT TURBINE CO., Sole Mfrs.

Send for Catalogue. MT. HOLLY, NEW JERSEY, U. S. A.



BURNHAM TURBINES UPRIGHT AND HORIZONTAL.

Warranted to give the most power
for least amount of water used,
of any wheel on the market.

Norish, Burnham & Co., Inc.
Glen Rock, Pa.

SEND FOR CATALOGUE.

R. D. WOOD & CO.,

400 Chestnut St., Philadelphia, Pa.

ENGINEERS,
FOUNDERS,
MACHINISTS,

For
Every
Purpose

CAST IRON PIPE

Hydraulic Tools and Appliances for Railroad Shops, Etc.

GAS POWER PLANTS WITH PRODUCERS.



TAYLOR'S SPIRAL RIVETED PIPE

for high and low pressure pipe
lines, irrigation, centrifugal
pumps and exhaust steam systems.
Furnished asphalt coated
or galvanized. Send for
catalogue and tell us your needs.

AMERICAN SPIRAL
PIPE WORKS

Main Office and Works, CHICAGO.

Eastern Office: 26 Cortlandt St., New York, N. Y.

The best means for the development and utilization of

Water Powers

by the most modern, economic and improved methods for electric lighting, power transmission, mining and general industrial purposes, is afforded by the

Victor Turbine

Its great capacity, high speed, unequaled efficiency, easy working gate, steady motion and close regulation will commend it to all users.

Our varieties of wheels enable us to build them for heads up to 2000 feet, and for units up to 12,000 H. P.

- Dayton, Ohio, U. S. A.

WE recently installed an Air Lift System in the South which pumps 9 million gallons of water from four ten-inch wells in 24 hours.

If you are about to install a pumping system, write us.

My Letters Make Good Castings.

Foundrymen and Patternmakers everywhere use them. Made in many sizes and styles and of lead composition or brass. Wholesale or retail and at low prices. Samples free.

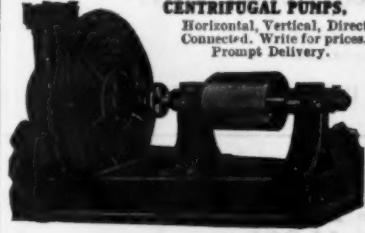
A. W. BRIM, Seneca Falls, N. Y.



ERIE PUMP & ENGINE CO.
ERIE, PA., U. S. A.

VERTICAL ENGINES, CENTRIFUGAL PUMPS.

Horizontal, Vertical, Direct Connected. Write for prices. Prompt Delivery.



Well Drilling Machines

Over 70 sizes and styles, for drilling either deep or shallow wells in any kind of soil or rock. Mounted on sills. With engines or horse powers. Strong, simple, durable.

Any mechanic can operate them. Send for catalog.

WILLIAMS BROS., ITHACA, N. Y.



TALLERDAY'S SHEET STEEL WATER PIPE FOR MINE OR IRRIGATION USE.

Transportation and connecting in difficult places is EASY.

Why not save a lot of money on long lines by using this pipe?

**WE BUILD
TANKS
FOR ALL
PURPOSES**



Made in single sheets in lengths of 10 ft. No. 15 and lighter.

Heavy Culvert Pipe a Specialty.

Write us stating requirements.

TALLERDAY STEEL PIPE & TANK CO., WATERLOO, IOWA.

Southern Towns Inviting Factories.

FORT WORTH, TEXAS.

The Railway Center and
Packing House Center
OF THE SOUTHWEST.



Growing Rapidly and Substantially.

An unsurpassed location for the investment
of Capital and the establishment of factories.
For information address

Board of Trade,
Fort Worth, **Texas.**

RAYNE, LA.

A prosperous town drawing support from the three great staples of the South—Cotton, Sugar and Rice. A centre for Poultry and Truck with considerable manufacturing interests, wants more manufactures and offers

Free Sites. **Cheap Fuel.**
Only 14 Miles From Jennings Oil Field.
Exemption From Taxation. **Cash Interest.**
Wants Especially a Small COTTON-OIL MILL.

—ADDRESS—

C.W. LYMAN, Secretary Progressive Union, Rayne, Acadia Parish, La.

ATHENS, GA.

Within forty miles of the Blue Ridge Mountains.
Population 14,000.
Offers unequalled Inducements to Home-Seekers
and Investors.

Climate unsurpassed, health unequalled. Educational Center of Georgia. Railroad facilities ample. Cotton receipts 80,000 bales per annum. Building material cheap. Labor abundant. Special inducements to secure new manufactures. Address

T. W. REED, Sec'y Athens Chamber of Commerce.

LOUISIANA'S INVITATION.

Provisions of Article 230 of the Constitution of the State of Louisiana.

"There shall also be exempt from parochial and municipal taxation for a period of ten years from the first day of January, 1900, the capital, machinery and other property employed in mining operations and in the manufacture of textile fabrics, yarns, rope, cordage, leather, shoes, harness, saddlery, hats, clothing, flour, machinery, articles of tin, copper and sheet iron, agricultural implements, and furniture and other articles of wood, marble or stone; soap, stationery, ink and paper, boat building and fertilizers and chemicals; provided, that not less than five hands are employed in any one factory."

LAFOURCHE PROGRESSIVE UNION, Thibodaux, La.

OLD DOMINION HORSE SHOES.

Cut Nails of Superior Quality of Iron and Steel.
Bolts, Refined Bar Iron.

GRANITE CRUSHED TO ORDER FOR CONCRETE PURPOSES.

OLD DOMINION IRON & NAIL WORKS CO.
RICHMOND, VA.



CHILLCOTT EVANS CHAIN CO., Allegheny, Pa.

Crane Chains, Log Chains, Tow Chains for River Navigation, Pole and Tongue Chains, Railroad Switch Chains, Wagon Lock Chains, Wagon Stay Chains, Rafting Chains, Railroad Brake Chains, Straight or Twist Link Binding Chain, Close Link, Self-Colored.

Free Land.

We are the owners of 67 acres of fine level land, two miles from Lynchburg, on the banks of the James and on the tracks of the C. & O. We are also the owners of unlimited power, hydraulic and electric. Hydraulic, our great dam, now completed, will supply 400 H.P.; our electric plant, now under construction, will give large additional power.

We will give you, Mr. Manufacturer, as much of our 67 acres as you need to build your plant on, for the purpose of selling you a part of our power at a low rate. We'll help you in every way we can.

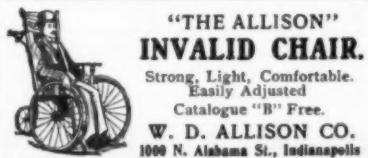
Lynchburg is a hustler—she has three lines of railway—unlimited and cheap power—shrewd and far-seeing business men—good street railway facilities—good papers—and public men most liberal to new enterprises.

We'll give you our lands and our help if you'll come here.

Lynchburg Traction & Light Co.

Lynchburg, Va.

R. D. Apperson, Pres.



"THE ALLISON"

INVALID CHAIR.

Strong, Light, Comfortable.

Easily Adjusted.

Catalogue "B" Free.

W. D. ALLISON CO.

1000 N. Alabama St., Indianapolis

SECOND HAND

Printing Presses, Paper Cutters.

The Cheapest Place to Buy

SPACES and QUADS.

Write for Prices and Discounts.

SPENCER & HALL,

Type Founders and Electrotypes,

BALTIMORE, MD.

"PROVIDENCE"

CAPSTANS.

WINDLASSES.

Built by the

AMERICAN SHIP WINDLASS CO., Providence, R. I.



THIS DRAY WE RECOMMEND FOR MERCHANTS,

COTTON MILLS OR WAREHOUSES.

MADE OF BEST SEASONED HICKORY AND OAK.

PRICE LOW.

Write for Price List and Catalogue.

W. P. HORNER WAGON MANUFACTURING CO.

DANVILLE, VA.

Railroads Inviting Factories.

Georgia Led Louisiana

IN THE

PRODUCTION OF SUGAR

for many years, and during the Civil War, while the blockade was effective, Georgia and Florida kept the South supplied.

Sugar factories in those States are profitable, and we want larger plants and more of them, and to capitalists and manufacturers our proposition is liberal in the extreme.

Write for data showing the saccharine contents of famous Blue Ribbon Cane, the tonnage per acre, water supply, and other features connected with the profitable operation of such a plant.

J. W. WHITE,

General Industrial Agent,

PORTSMOUTH, VA.

SEABOARD AIR LINE RAILWAY.

YOUR ATTENTION, PLEASE!

Virginia

offers a number of fine openings in the line of

MINING, MANUFACTURING and FARMING.

Along the lines of the

Norfolk and Western Railway

are hundreds of towns extending you a hearty welcome.

Address, for pamphlets and information, W. B. BEVILL, PAUL SCHERER, G. P. A. Agt. Lands & Industries. ROANOKE, VA.

Come to West Virginia.

Why?

It has more and a greater variety of undeveloped resources close to Eastern and Western markets than any other State. The WEST VIRGINIA CENTRAL & PITTSBURG RAILWAY penetrates the heart of the virgin timber forests and coal deposits. Cheap fuel, cheap raw material and unsurpassed railway facilities make that territory most desirable for manufacturing industries. For information in regard to timber and coal lands and manufacturing sites address

HOWARD SUTHERLAND,

Gen'l Land Agent, ELKINS, W. VA.

PEABODY CONSERVATORY OF MUSIC,

HAROLD RANDOLPH, Director.
Mt. Vernon Place and Charles St., Baltimore.

PREPARATORY DEPT.,

MAY GARRETTSON EVANS,

Superintendent,

23 AND 25 EAST MT. VERNON PLACE.
REOPENS OCTOBER 1 for instruction. Apply in September, 10 A. M. to 4 P. M.

The Peabody offers a wide range of music, make it the GREAT MUSIC CENTRE OF THE SOUTH AND UNPARSED BY ANY OTHER CONSERVATORY IN THE COUNTRY.

Faculty of 40 European and American Masters, including PROFESSORS BARKWORTH, BOISE, HEIMENDAHL, HULSTEYN, HUTCHESON, GOODWAY, GOODWIN, MINETTI, WAD, &c. Advanced and elementary instruction given. Scholarships, Diplomas and Teachers' Certificates. TUITION FEES, \$15 TO \$60 for scholastic year, according to grade and branch of study. Class and Private Lessons. Free Advantages to Pupils. Circulars mailed free.



DETROIT AND BUFFALO STEAMBOAT CO.
QUEENS OF THE LAKES
Steamers Eastern States and Western States
\$3 SAVED
TO ANY POINT WEST
Lr. BUFFALO daily 5:30 P. M., ar. DETROIT 7:30 A. M., connecting with all trains. W. B. D. & C. for Michigan, Lr. DETROIT daily 4:30 P. M., ar. Lr. BUFFALO 7:30 A. M. Fare: \$2.50 one way, round trip \$4.10. Berths \$1.00 and \$1.50, rooms \$2.50, parlors \$3.00, each way. Week End Excursions DETROIT and Return, \$2.50. Send 2c for illustrated pamphlet. Address A. A. SCHARTZ, G. P. T. H., Detroit, Mich.

BALTIMORE-MARYLAND ENGRAVING CO.
Illustrators Designers
HALF-TONES ELECTROTYPES ZINC CUTS

Splendid Opportunities For Profitable Investments.

MANUFACTURERS

before locating elsewhere should examine the

Excellent Locations for Factories of All Kinds

existing along the

Southern Railway and Mobile & Ohio Railroad.

Abundance of raw material, cheap fuel, plenty of good labor and unsurpassed transportation facilities tend to make the territory traversed by these lines superior for the successful investment of capital in

Textile Mills, Lumber Mills, Furniture Factories, Iron and Steel Works, Etc.

For further and detailed information address,

M. V. RICHARDS,

Washington, D. C.

Land and Industrial Agent:

SOUTHERN RAILWAY and
MOBILE & OHIO RAILROAD.

REED'S SELF LOCKING VISES



are popular because they are built to last and make work easy. The base of this vise has lugs on both sides so that the latch may be used on either side by simply reversing the yoke. It is simple in construction and locks and unlocks instantly. The very best of material and skilled labor are used in the manufacture of these vises. The screws are made of all much bar, and the jaws are milled from tool steel and hardened in oil. All parts interchangeable. Every vise is sold under an absolute guarantee. Send for catalogue "R" describing our Plumbers' and Steamfitters' Tools.

REED MFG. CO., ERIE, PENNA.

Dearborn Junior Typewriter Table Cabinet.



\$12.00

Solid Golden Oak, 42 ins. long, 24 ins. deep. Guaranteed to be the most complete Typewriter Table CABINET ever sold at the price. Attachment for holding note book effective and invaluable. Shipped to responsible parties on approval for \$12.00, freight prepaid east of the Rocky Mountains. What more can we offer? Write for catalogue of Dearborn Typewriter Cabinets.

DEARBORN DESK COMPANY.

MFRS. OF TYPEWRITER CABINETS EXCLUSIVELY.
1921 First Ave., Birmingham, Ala.
200 Monroe Street, Chicago, Ill.

THE UNIVERSITY

School for Boys,

1205 Cathedral St., Baltimore, Md.

(INCORPORATED).

W. S. MARSTON, A. B. & C. E., Prin'l.

23d Year Begun Thursday, Sept. 25th.

The most fully-equipped Day School for Boys in the South. Primary, Junior and Senior Sections. In the Primary Section, in which the number is limited to 30, boys are taken as young as seven. In June of last year the school had successful candidates for admission to the Johns Hopkins, Harvard, Princeton, The Massachusetts Institute of Technology, Lehigh University and Haverford College.

There is a large and fully-equipped Gymnasium Play Ground, Library and Reading Room. The buildings are the best lighted and ventilated of any in Baltimore.

Catalogues at the Johns Hopkins and at the book stores. For further information address the Principal at 1205 Cathedral St., or apply at the school.

BOARDING PUPILS.

A limited number of Boarding Pupils will be taken into the families of the teachers, where they will receive all the care and attention of home life.

If you are thinking of enlarging your mill, factory or mine, or of purchasing machinery of any kind, send the Manufacturers' Record a postal card giving the character of the machinery needed.

SHELBY

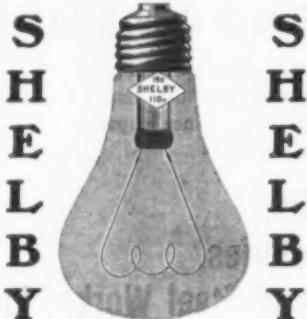
Useful Light

LAMPS

For All Purposes.

The Best. More Light

Where You Want
It The Most.



Do You Know

A 16 C. P.
SHELBY LAMP
will give as much
USEFUL LIGHT
as a 32 C. P. Oval Anchored
Lamp?

IT WILL.

Do You Know

A SHELBY LAMP will
give from 50 to 100 per
cent. MORE LIGHT in
USEFUL DIRECTIONS
than other* makes of
lamps using same amount
of current?

IT WILL.

If you will send us an order

We Will

guarantee results, because
we know from experience

You Will

be satisfied.

Branch Offices in all Large Cities.

The Shelby Electric Company,

Main Office and Factories:

100 Seco St.

SHELBY, OHIO.

RIDGWAY

DYNAMO

(Thompson-Ryan Patents),

and

Automatic Engine

(McEwen Patents),

combine the best materials, technical skill and workmanship in their construction. No machine is shipped without having undergone at least one full day's test under full-rated load.

Our Illustrated Catalog gives important details of these machines.

Ridgway Dynamo & Engine Co.
RIDGWAY, PA.

GAS, ELECTRIC AND COMBINATION

Chandelier Manufacturers,

CATALOGUE ON
APPLICATION.

CHANDELIERS FOR FINE RESIDENCES AND LARGE BUILDINGS

OUR SPECIALTY.

ORIGINAL DESIGNS FURNISHED.

Chas. Polacheck & Bro. Co.
185 and 187 3d Street,
MILWAUKEE, WIS.

High-Grade Electrical Supplies

Prompt Shipments.
Lowest Market Prices.
Low Freight Rates.
Let us have your next order.

ELECTRIC SUPPLY CO.
Savannah, Ga.

Packard

Lamps, Transformers,
Insulating Cloths
and Varnishes

NEW YORK & OHIO COMPANY,
410 North Avenue, Warren, Ohio.
NEW YORK OFFICE: 1 Broadway.

General Electric Company,

Principal Office:

SCHENECTADY, N.Y.

Sales Offices in all Large Cities of the U.S.

W. H. JENKS,
Electrical Contractor,
AND DEALER IN
ELECTRICAL SUPPLIES OF EVERY
DESCRIPTION.
617 E. Main Street, Richmond, Va.

WHEN IN NEED OF
Insulator Pins, Red Cedar or Chestnut
Telephone Poles, or Red Cedar
of Any Description,
do not fail to correspond with —
HOUSTON & LIGGETT, Lewisburg, Tenn.

STANDARD ELECTRIC CO.

Main Office, NORFOLK, VA.

BRANCH OFFICE, - - - CHARLOTTE, N.C.

Supplies

WE SELL EVERYTHING ELECTRICAL, which includes Supplies for Lighting, Combination Fixtures of every description, Telephones, Switchboards and all Accessories, wholesale and retail.

Construction

We will furnish your Mill, Shop or Factory, with a complete Electrical Equipment and GUARANTEE our work.

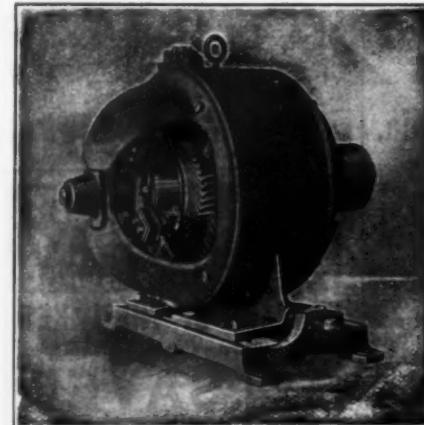
Railways

WE ARE ELECTRICAL ENGINEERS and as such finance the building of and also equip new Electric Railways. You can purchase from us a complete line of Electric Railway Supplies.

"A Word to the Wise is Sufficient"

"Ours is the Light of the World."
KENTUCKY ELECTRICAL CO., Incorporated,

MANUFACTURERS OF
Incandescent Lamps, Motors and Dynamos.
OWENSBORO, KY.



Our goods are guaranteed, our shipments prompt. We do not belong to the combine. Write for prices.

FLORIDA ELECTRIC CO.
Electrical and General Engineers.
JACKSONVILLE, FLA.

Southern Agents for

De Laval Steam Turbines.
Curran's Electric Elevators.

A complete line of Motors, Dynamos and Electrical Supplies of all kinds constantly on hand.

CONTRACTORS
FOR ELECTRICAL
CONSTRUCTION
OF EVERY
DESCRIPTION.

PIEDMONT
ELECTRIC
COMPANY
ASHEVILLE, N.C.

JOBBERS IN
ELECTRICAL
SUPPLIES
AND
FIXTURES.



nos.

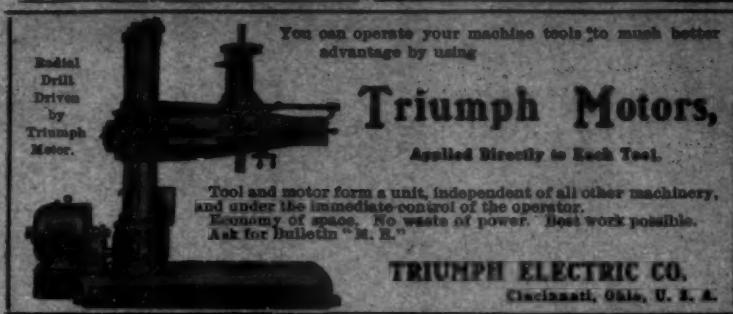
Y

mbine.

ers.

Dynamos
all kinds

S IN
ICAL
IES
RES.



The S. B. Alexander, Jr., Co. Engineers and Manufacturers CHARLOTTE, N. C.

Wholesale and Retail Electrical Supply Dealers. Largest stock of Electrical Supplies carried south of New York. TWENTY-FIVE thousand Sawyer-Man Lamps carried in stock.

Textile, Engineers', Machinists' and Electrical Supplies.

**CAST
IRON
PIPE**

The Dimmick Pipe Co.
Makers of VALVES and HYDRANTS. Special
Castings of Every Description.
Birmingham, Ala.
New York, 30 Broadway.
San Francisco, 21 New Montgomery St.
Pittsburg, 512 Fissimons Bldg.
Philadelphia, 1081 Drexel Bldg.
St. Louis, 20 Equitable Bldg.

Nickel Plating Outfits.
POLISHING MACHINERY
CHEMICALS.
DYNAMOS.
THE HANSON & VAN WINKLE CO.
CHICAGO - NEWARK, N. J.
ADDRESS DEPARTMENT W.

"ALL THINGS ELECTRICAL"

Largest Stock of General Supplies in South.

—Agents for—
Duncan Motor Co., Sawyer MAN INS. Lamp Co., Herst Lamp Co.,
Westinghouse Elec. & Mfg. Co., Western Telephone Co.

Write for our catalogue and prices.

ELECTRICAL MATERIAL CO., BALTIMORE,
MARYLAND.

WESCO.

WESCO.

Everything Electrical

Largest and most complete stock of Electrical Supplies and Construction Material in U. S.

We can furnish anything pertaining to the construction, operation, maintenance or equipment of

Electric Railways, Isolated Plants and Central Stations, Telephone Lines and Exchanges.

Western Electrical Supply Co.

ST. LOUIS, U. S. A.

UNITED STATES CAST IRON PIPE & FOUNDRY COMPANY,

Railroad and Township Culverts, Flange Pipe and Special Castings of every description.

CAST IRON PIPE

MANUFACTURERS OF
All Sizes, 6 to 72-in. Internal
Diameter.

Gen. Offices: Chicago, Ill. Eastern Office: Phila. Southern Office: Chattanooga, Tenn.

TRADE
MARK

EVERBEST

TRADE
MARK

Jandus Arc Lamps

The only lamp that will burn 150 hours without trimming.

You mistake if you don't investigate.

BULLETIN AND FULL INFORMATION FROM

EWING-MERKLE ELECTRIC CO.

ST. LOUIS.

TRADE
MARK

EVERBEST

TRADE
MARK

Motors.

COMMERCIAL ELECTRIC COMPANY,
INDIANAPOLIS, IND.

DYNAMOS.



Jenkins Bros.' Valves.

The metal and workmanship are the best. All parts are interchangeable. Need no regrinding, as they are more effectively repaired by renewing the Disc, which can be easily and quickly done without removing valve from the pipe, and costs but a trifle. Insist on having the genuine, which always bear our Trade-Mark.

JENKINS BROS., New York, Boston, Philadelphia, Chicago, London.

**THE ALLINGTON & CURTIS DUST & SHAVINGS SYSTEM IS
1000 PLANTS PROVED IT. OUR FREE CATALOGUE SHOWS WHY.
FREE ESTIMATES BY EXPERTS**

PITLESS WAGON AND STOCK SCALES.
Complete Scale above the Ground.
Steel Joist. Steel Frame.
Frame 9 Inches High.
McDonald Bros., Box 515, Pleasant Hill, Me.

THE BEST EXHAUST FANS & BLOW PIPING FURNACE FEEDERS

"MORSE" CYCLONE DUST COLLECTORS
MFG. BY THE ALLINGTON & CURTIS MFG. CO.
SAGINAW, MICH.

109,500,000 Gallons of Water Per Hour

PUMPED BY THE

300,000 PENBERTHY

Automatic Injectors

which have been made and sold, during the past sixteen years,
During this time the "PENBERTHY" has
attained universal recognition as the

Standard Automatic Boiler Feeder.

PENBERTHY INJECTOR CO., DETROIT, MICH.

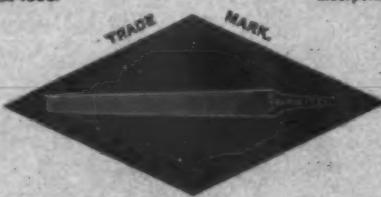
Largest Injector Manufacturers in the World.

Black Diamond File Works

Established 1863.

Incorporated 1895.

Twelve
Medals
Awarded at
International
Expositions.



Specia.
Prize
Gold
Medal
Atlanta, 1895.

Our Goods are on Sale in every leading Hardware Store
in the United States and Canada.

G. & H. BARNETT CO., Philadelphia, Pa.

To Manufacturers and Capitalists

Contemplating the Establishment of Industrial Enterprises.

Attention is called to the exceptionally favorable location of

NEWPORT NEWS, VA.,

on Hampton Roads, fifteen miles from the Sea. Deep water, railway and sea transportation facilities unrivaled. Climate salubrious. Apply to

C. B. ORCUTT, President.

OLD DOMINION LAND COMPANY
1 BROADWAY, NEW YORK

THE BALTIMORE SHIPBUILDING AND DRY DOCK CO.

Works at Locust Point, BALTIMORE, MD.
Shipbuilders in Iron and Steel. All Kinds of Marine Repairs, Dry-Docking.
ENGINEERS AND MECHANICS.

H. STEVENS' SONS CO., Macon, Ga.

Manufacturers of

Sewer and R. R. Culvert Pipe,

Bone Brick, Milled Clay Pipe and Chimney
Tops, Urns, etc. Correspondence Solicited.



THERE is this about Dixon's Pipe Joint Compound. It
gets right in between the threads of the pipe and
makes a perfectly tight joint, but you can get it apart
without bending or breaking the pipe. Ask for a sample
and booklet 30-d which tells about it.

JOSEPH DIXON CRUCIBLE CO., JERSEY CITY, N.J.

Sellers' Restarting Injector



A strictly first class machine at moderate cost.

Perfectly automatic, has wide range of capacities, and raises water promptly with hot or cold pipes.

Very simple, has few parts and is easily repaired.

All parts interchangeable, made of the best bronze, and the workmanship is perfect. Send for special catalogue descriptive of this Injector.

JENKINS BROTHERS, Selling Agents
NEW YORK, BOSTON, PHILA., CHICAGO



Main Office, St. Louis, Mo. Branches, 116 W. 2d St.,
Phila.; Revere Rubber Co., New Orleans, La.

GRINNELL SPRINKLERS.

General Fire Extinguisher
Company,

Executive Offices: Providence, R. I.

At Our New
Charlotte Plant,

CHARLOTTE, N. C.

We carry the largest and best stock in the South of
**Pipe, Fittings, Valves,
Steam and Water Supplies**

Pipe from $\frac{3}{4}$ inch to 12 inches cut to measure.
Orders executed promptly at lowest prices.

J. W. CONWAY,
Manager Southern Department.

INVESTIGATE

That means examine the

**STIEFF
PIANOS**

as well as others. You will find in it
merits that deserve your consideration.

You Know Its Reputation.

You know it's made at home.
You know your friends use and like it.
You know it's been established since
1843.

If You Can't Pay Cash, Buy and Pay Monthly
OTHER PIANOS—New and Second-Hand.

Uprights—\$100—\$150—etc., up.
Squares—\$20—\$35—up.
Organs—\$30—up.

**STIEFF'S, 9 N. Liberty St.
BALTIMORE, MD.**

York Safe & Lock Co.

MANUFACTURERS OF

**Safes and
Vaults**

YORK, PA. BALTIMORE, MD.

AUTOMATIC
Send for Catalogue
RICHARDSON SCALES CO.
12-21 Park Row, N. Y.
SCALES

OSGOOD
Popular Prices
High Grade
SCALES.
Send for Catalogue & Discount Sheet
Attractive Store Manager Free!
Write OSGOOD SCALE CO.,
Binghamton, N.Y.

**STEEL
CASTINGS**

OPEN HEARTH Steel Castings of every description, for
Electrical Machinery; Dredging, Rolling
and Sugar Mill Machinery; Locomotive, Railroad
and Bridge Work, etc.

MCNAULIE Steel Castings of all shapes and sizes, from 1
lb. up. Superior for Crankshafts, Gearing and
other purposes where great wearing results are required.
CHESTER STEEL CASTINGS CO.
Works, CHESTER, PA. Office, 407 Sansom St., PHILA., PA.
Correspondence Solicited.

"The Standard" Scales

FOR
Cottonseed Oil Mills, Cotton Gins, Railroads, Mines, Mills, Warehouses
AND ALL
Used by the U. S. Government, Lading Railroads and Manufacturers.

THE STANDARD SCALE & SUPPLY CO., Limited, Manufacturers,
PITTSBURGH, PA.



Sinclair Ironers

are the First and Best. **Sinclair Washers** are the Latest and Best.

S. H. SINCLAIR CO.
Manufacturer of LAUNDRY MACHINERY,
8 and 10 S. Canal St., CHICAGO, ILL.

Write for Catalogue "E." Estimates cheerfully furnished.

Do You Want to Buy
"The Columbia" Modern Laundry Machinery
Is the Cheapest, and Best.
Latest. "Up-To-Date." "Prices Right."
WILSON LAUNDRY MACHINERY CO. Send for Catalog R. Columbia, Pa.

LAUNDRY MACHINERY, HAND OR POWER.
For Hotels, Drygoods, Commercial Laundries and Domestic Use.
Write for Price. A. L. DAWSON & CO., 57-51 W. Washington St., Chicago.

SHARP'S Latest Styles Ironing & Washing Machinery
Complete Plants Supplied.
ADAMS LAUNDRY MACHINERY CO., 1931-1937 6th Ave., Troy, N.Y.